

STATE OF MICHIGAN
 DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
 PROCUREMENT
 P.O. BOX 30026, LANSING, MI 48909
 OR
 525 W. ALLEGAN, LANSING, MI 48933

CHANGE NOTICE NO. 3
 to
CONTRACT NO. 071B1300264
 between
THE STATE OF MICHIGAN
 and

NAME & ADDRESS OF CONTRACTOR	PRIMARY CONTACT	EMAIL
PVS Nolwood Chemicals, Inc. 10900 Harper Avenue Detroit, Michigan 48213	Angela Zapoli-Davis	azapoli@pvschemicals.com
	PHONE	VENDOR TAX ID # (LAST FOUR DIGITS ONLY)
	313-925-0300	1221

STATE CONTACTS	AGENCY	NAME	PHONE	EMAIL
PROGRAM MANAGER	MDOC	Jay Ketcik	517-373-1509	ketcikj@michigan.gov
CONTRACT ADMINISTRATOR	DTMB	Steve Rigg	517-284-7043	riggs@michigan.gov

CONTRACT SUMMARY				
DESCRIPTION: Quaternary Ammonium Derivatives and Chemicals – MDOC/MSI				
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW	
May 3, 2011	April 30, 2014	2 – 1 year options	April 30, 2015	
PAYMENT TERMS	F.O.B.	SHIPPED TO		
Net 45	N/A	N/A		
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING	
<input type="checkbox"/> P-card <input type="checkbox"/> Direct Voucher (DV) <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
MINIMUM DELIVERY REQUIREMENTS				
N/A				

DESCRIPTION OF CHANGE NOTICE				
EXTEND CONTRACT EXPIRATION DATE	EXERCISE CONTRACT OPTION YEAR(S)	EXTENSION BEYOND CONTRACT OPTION YEARS	LENGTH OF EXTENSION/OPTION	EXPIRATION DATE AFTER CHANGE
<input type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1 year	April 30, 2016
CURRENT VALUE		VALUE/COST OF CHANGE NOTICE	ESTIMATED REVISED AGGREGATE CONTRACT VALUE	
\$639,931.66		\$100,000.00	\$739,931.66	

DESCRIPTION:
 Effective April 28, 2015, this contract is exercising the second option year and is increased by \$100,000.00. The revised contract expiration date is April 30, 2016. All other terms, conditions, specifications, and pricing remain the same. Per agency and vendor agreement, DTMB-Procurement approval, and State Administrative Board approval on April 28, 2015.

STATE OF MICHIGAN
 DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
 PROCUREMENT
 P.O. BOX 30026, LANSING, MI 48909
 OR
 525 W. ALLEGAN, LANSING, MI 48933

CHANGE NOTICE NO. 2
 to
CONTRACT NO. 071B1300264
 between
THE STATE OF MICHIGAN
 and

NAME & ADDRESS OF CONTRACTOR:	PRIMARY CONTACT	EMAIL
PVS Nolwood Chemicals, Inc. 10900 Harper Avenue Detroit, Michigan 48213	Angela Zapoli-Davis	azapoli@pvschemicals.com
	TELEPHONE	CONTRACTOR #, MAIL CODE
	313-925-0300	

STATE CONTACTS	AGENCY	NAME	PHONE	EMAIL
CONTRACT COMPLIANCE INSPECTOR	MDOC	Jeff Barrett	313-368-3200 ext51412	barretjw@michigan.gov
BUYER	DTMB	Steve Rigg	517-284-7043	riggs@michigan.gov

CONTRACT SUMMARY:			
DESCRIPTION: Quaternary Ammonium Derivatives and Chemicals – MDOC/MSI			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
May 3, 2011	April 30, 2014	2, 1 year options	April 30, 2014
PAYMENT TERMS	F.O.B	SHIPPED	SHIPPED FROM
Net 45	N/A	N/A	N/A
ALTERNATE PAYMENT OPTIONS:			AVAILABLE TO MiDEAL PARTICIPANTS
<input type="checkbox"/> P-card <input type="checkbox"/> Direct Voucher (DV) <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
MINIMUM DELIVERY REQUIREMENTS:			
N/A			

DESCRIPTION OF CHANGE NOTICE:				
EXTEND CONTRACT EXPIRATION DATE	EXERCISE CONTRACT OPTION YEAR(S)	EXTENSION BEYOND CONTRACT OPTION YEARS	LENGTH OF OPTION/EXTENSION	EXPIRATION DATE AFTER CHANGE
<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1 year	April 30, 2015
VALUE/COST OF CHANGE NOTICE:		ESTIMATED REVISED AGGREGATE CONTRACT VALUE:		
\$190,000.00		\$639,931.66		

Effective immediately, the first option year available on this Contract is hereby utilized. The REVISED Contract end date is April 30, 2015. Effective immediately, this Contract is INCREASED by \$190,000.00. Effective immediately, line items 002, 003, 004, 005, 006, 007, 008, 009, 010, and 011 are hereby removed. Only line item 001 remains in effect (Attachment B replaces Attachment A). All other terms, conditions, pricing and specifications remain unchanged.

Per agency request, vendor agreement, approval from DTMB-Procurement, and the State Administrative Board

approval on April 22, 2014.

Change Notice Number 2

Contract Number 071B1300264

Attachment B, Product Listing

Line Item No.	Product Description	Estimated 3 Year Quantity	Unit of Measure
001	BTC-2125M: DUAL-QUAT CONCENTRATED GERMICIDE, MIXTURE OF 25% ALKYL DIMETHYL BENZYL AMMONIUM CHOLORIDE CAS #68391-01-5, 25% ALKYDIMTHYL (ETHYLBENZYL) AMMONIUM CHLORIDE CAS #68956-76-6. MUST BE CLEAR LIQUID. MUST BE 50% ACTIVE CATIONIC. PRODUCT MUST BE REGISTERED WITH EPA FOR USE IN DISINFECTANTS PRODUCED BY MICHIGAN STATE INDUSTRIES. DRUM 425 LBS, SPECIFIC GRAVITY (8.1 LB/GA) MUST BE BTC-2125M, PRODUCT NUMBER (3302), PRODUCT OF STEPHAN CHEMICAL COMPANY, NORTHFIELD, IL. NO SUBSTITUTIONS.	300,000	lb.

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET February 23, 2012
PROCUREMENT
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

CHANGE NOTICE NO.1
TO
CONTRACT NO. 071B1300264
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR PVS Nolwood Chemicals, Inc. 10900 Harper Avenue Detroit, Michigan 48213 Email: azapoli@pvschemicals.com	TELEPHONE (313) 925-0300 Angela Zapoli-Davis
	CONTRACTOR NUMBER/MAIL CODE
	BUYER/CA (517) 373-0301 Sue Cieciva
Contract Compliance Inspector: Jeff Barrett, (313) 368-3200 x 51412 Quaternary Ammonium Derivatives and Chemicals – MDOC/MSI	
CONTRACT PERIOD: 3 yrs. + 2 one-year options From: May 3, 2011 To: April 30, 2014	
TERMS Net 45	SHIPMENT N/A
F.O.B. N/A	SHIPPED FROM N/A
ALTERNATE PAYMENT OPTIONS: <input type="checkbox"/> P-card <input type="checkbox"/> Direct Voucher (DV) <input type="checkbox"/> Other	
MINIMUM DELIVERY REQUIREMENTS N/A	
MISCELLANEOUS INFORMATION:	

NATURE OF CHANGE(S):

Effective immediately, the buyer is hereby CHANGED to Sue Cieciva.

AUTHORITY/REASON(S):

Per DTMB Procurement.

TOTAL ESTIMATED CONTRACT VALUE: \$449,931.66

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

May 10, 2011

NOTICE
OF
CONTRACT NO. 071B1300264
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR PVS Nolwood Chemicals, Inc. 10900 Harper Avenue Detroit, Michigan 48213 Email: azapoli@pvschemicals.com	TELEPHONE (313) 925-0300 Angela Zapoli-Davis
	CONTRACTOR NUMBER/MAIL CODE
	BUYER/CA (517) 373-7396 Kristen Robel
Contract Compliance Inspector: Jeff Barrett, (313) 368-3200 x 51412 Quaternary Ammonium Derivatives and Chemicals – MDOC/MSI	
CONTRACT PERIOD: 3 yrs. + 2 one-year options From: May 3, 2011 To: April 30, 2014	
TERMS Net 45	SHIPMENT N/A
F.O.B. N/A	SHIPPED FROM N/A
ALTERNATE PAYMENT OPTIONS: <input type="checkbox"/> P-card <input type="checkbox"/> Direct Voucher (DV) <input type="checkbox"/> Other	
MINIMUM DELIVERY REQUIREMENTS N/A	
MISCELLANEOUS INFORMATION:	

TOTAL ESTIMATED CONTRACT VALUE: \$449,931.66

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
 OR
530 W. ALLEGAN, LANSING, MI 48933

CONTRACT NO. 071B1300264
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR PVS Nolwood Chemicals, Inc. 10900 Harper Avenue Detroit, Michigan 48213 Email: azapoli@pvschemicals.com	TELEPHONE (313) 925-0300 Angela Zapoli-Davis CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 373-7396 Kristen Robel
Contract Compliance Inspector: Jeff Barrett, (313) 368-3200 x 51412 Quaternary Ammonium Derivatives and Chemicals – MDOC/MSI	
CONTRACT PERIOD: 3 yrs. + 2 one-year options From: May 3, 2011 To: April 30, 2014	
TERMS <p style="text-align: center;">Net 45</p>	SHIPMENT <p style="text-align: center;">N/A</p>
F.O.B. <p style="text-align: center;">N/A</p>	SHIPPED FROM <p style="text-align: center;">N/A</p>
ALTERNATE PAYMENT OPTIONS: <input type="checkbox"/> P-card <input type="checkbox"/> Direct Voucher (DV) <input type="checkbox"/> Other	
MINIMUM DELIVERY REQUIREMENTS <p style="text-align: center;">N/A</p>	
MISCELLANEOUS INFORMATION: The terms and conditions of this Contract are those of ITB #07111300085, this Contract Agreement and the vendor's quote dated March 30, 2011. In the event of any conflicts between the specifications, and terms and conditions, indicated by the State and those indicated by the vendor, those of the State take precedence.	
Estimated Contract Value: \$449,931.66	

THIS IS NOT AN ORDER: This Contract Agreement is awarded on the basis of our inquiry bearing the ITB No. 07111300085. Orders for delivery will be issued directly by the Department of Transportation/Michigan State Industries through the issuance of a Purchase Order Form.

All terms and conditions of the invitation to bid are made a part hereof.

FOR THE CONTRACTOR: PVS Nolwood Chemicals, Inc. Firm Name	FOR THE STATE: Signature Kristen Robel, Buyer
Authorized Agent Signature Angela Zapoli-Davis	Name/Title Commodities Division
Authorized Agent (Print or Type)	Division
Date	Date



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Definitions

This section provides definitions for terms used throughout this document.

Business Day - whether capitalized or not, means any day other than a Saturday, Sunday, State employee temporary layoff day, or State-recognized legal holiday (as identified in the Collective Bargaining Agreement for State employees) from 8:00am through 5:00pm Eastern Time unless otherwise stated.

Buyer – the DTMB-Purchasing Operations employee identified on the cover page of this RFP.

Chronic Failure - as defined in applicable Service Level Agreements.

Contract – based on this RFP, an agreement that has been approved and executed by the awarded Contractor, the DTMB-Purchasing Operations Director, and the State Administrative Board.

Contractor – the awarded Contractor after the Effective Date.

Days - Business Days unless otherwise specified.

Deleted, Not Applicable - the section is not applicable or included in this RFP. This is used as a placeholder to maintain consistent numbering.

Deliverable(s) - physical goods or commodities as required or identified in a Statement of Work.

Eastern Time – either Eastern Standard Time or Eastern Daylight Time, whichever is prevailing in Lansing, Michigan.

Effective Date - the date that a binding contract is executed by the final party.

Final Acceptance - has the meaning provided in Section 2.8.7, Final Acceptance, unless otherwise stated in Article 1.

Key Personnel - any personnel designated as Key Personnel in Sections 1.3.3, Staff, Duties, and Responsibilities, and 2.4.2, Contractor Key Personnel, subject to the restrictions of Section 2.4.2.

Post-Industrial Waste - industrial by-products which would otherwise go to disposal and wastes generated after completion of a manufacturing process, but does not include internally generated scrap commonly returned to industrial or manufacturing processes.

Purchase Order - a written document issued by the State that requests full or partial performance of this Contract.

State - the State of Michigan.

State Location - any physical location where the State performs work. State Location may include state-owned, leased, or rented space.

Stop Work Order - a notice requiring the Contractor to fully or partially stop work in accordance with the terms of the notice.

Subcontractor - a company or person that the Contractor delegates performance of a portion of the Deliverable(s) to, but does not include independent contractors engaged by the Contractor solely in a staff augmentation role.

Unauthorized Removal - the Contractor's removal of Key Personnel without the prior written consent of the State.



Article 1 – Statement of Work

1.1 Project Identification

This Contract is for the Michigan Department of Corrections (MDOC), Michigan State Industries hereinafter known as (MSI) to purchase quaternary ammonium derivatives and chemicals.

1.1.1 Project Request – Deleted, Not Applicable

1.1.2 Background – Deleted, Not Applicable

1.2 Scope of Work and Deliverable(s)

1.2.1 In Scope – Deleted, Not Applicable

1.2.2 Deliverable(s)

1. The Contractor must deliver quaternary ammonium derivatives and chemicals in quantities of no less than 2,000 pounds, composed of a combination of various products per order.
2. The products must be delivered to the MSI Janitorial Factory located inside the Ryan Correctional Facility.
3. Orders must be received at the MSI Janitorial Factory within five (5) calendar days of receipt of order. (See article 1.4.5 for the address)
4. The Contractor must provide a Certificate of Analysis with each shipment for Quality Assurance and verification of compliance to specifications.
5. The price submitted for each order will be firm for the assigned purchase order.
6. The cost of palletizing must be included in the unit cost.

1.2.3 Quantity

The State is not obligated to purchase in any specific quantity.

1.2.4 Ordering

The State will issue a Purchase Order, which must be approved by the Contract Compliance Inspector, to order any Deliverable(s). The Contractor is not authorized to begin performance until receipt of a Purchase Order.

1.2.5 Alternate Bids – Deleted, Not Applicable

1.3 Management and Staffing

1.3.1 Project Management

The Contractor will carry out this project under the direction and control of the MDOC/MSI.

1.3.2 Reports

The Contractor must submit the following periodic reports to the State: usage reports, including quantity and dollars for State and MiDEAL members. In addition, the Contractor must provide the following reports:

The Contractor shall provide various reports when requested by MDOC/MSI. Examples include itemized reports of total items purchased by MDOC/MSI, open invoice reports, delivery compliance reports, quality reports, etc.

1.3.3 Staff, Duties, and Responsibilities

The Contractor has identified the key personnel for this Contract:
Angela Zapoli-Davis, Marketing Coordinator



1.3.4 Meetings

The State may request a kick-off meeting with the Contractor within thirty (30) days of the Effective Date. The State may request other meetings as it deems appropriate.

1.3.5 Place of Performance

The Contractor must list the location of all facilities that will be involved in performing this Contract:

Full address of place of performance	Owner/operator of facility to be used	Percent (%) of Contract value to be performed at listed location
9000 Hubbell Detroit, Michigan 48228	PVS Nolwood Chemicals	75%
10900 Harper Detroit, Michigan 48213	PVS Nolwood Chemicals	25%

1.3.6 Reserved

1.3.7 Binding Commitments

Angela Zapoli-Davis is the Contractor with the authority to make binding commitments on the Contractor's behalf and state the extent of that authority.

1.3.8 Training - Deleted, Not Applicable

1.3.9 Security

The State may decide to perform an additional background check under Section 2.4.9, Background Checks. If so, the Contractor must provide a list of all personnel, including name and date of birth that will be assigned to State work.

1.4 Delivery and Acceptance

1.4.1 Time Frames

All Deliverable(s) must be delivered within five (5) calendar days after receipt of order. The receipt of order date is governed in the same manner as notices sent under Section 2.3.6, Notices.

1.4.2 Minimum Order

Minimum order is 2,000 pounds of any combined products.

1.4.3 Packaging

Packaging and containers, etc., shall be in accordance with suppliers commercial practice and shall meet the requirements of Department of Transportation (DOT) and rail and motor carrier freight classifications in effect at time of shipment, which will permit application of the lowest freight rate.

Packaging and containers must meet the current requirements of state and federal law applicable to rail and motor carrier freight classifications, which will permit application of the lowest freight rate.

1.4.4 Palletizing

All Deliverables must be shipped according to the following:

Manufactures standard 4-way shipping pallets are acceptable.

Maximum height: 5'6", including pallet.

Maximum weight: 3,500 pounds, including pallet.

Pallets are to be securely banded or shrink-wrapped.



Delivering Carrier not to exceed 65' truck and trailer (combined).

The cost of palletizing must be included in the unit price.

Shipments must be palletized whenever possible. Manufacturer's standard 4-way shipping pallets must be used.

1.4.5 Delivery Term

F.O.B. Destination
Ryan Correctional Facility
Janitorial Factory
17600 Ryan Road
Detroit, MI 48212

Deliveries shall be Monday through Friday 8:00 a.m.-10:30 a.m. and 12:00 p.m.-2:30 p.m. No deliveries will be accepted on State of Michigan holidays. Items delivered must meet factory superintendent's approval. Overages or shortages in excess of 5% will not be accepted. There shall be nothing loaded on or in the truck other than the items being delivered to Michigan State Industries. Michigan State Industries reserves the right to require that delivery be made directly to the factory.

At least 24 hours prior to delivery of an order, the carrier shall call the factory superintendent at 313-368-3200 ext. 51412 or ext. 51415 and provide the information for Law Enforcement Information Network (L.E.I.N.) clearance of the delivery driver and rider(s). Minors under the age of 17 will not be allowed to enter the facility.

Contractor should be aware that there is a possibility of a mobilization at any of the Correctional Facilities which prohibits delivery carriers entering the facility at time of arrival. MDOC/MSI will not be responsible for any additional charges which may arise due to delivery delays caused by a mobilization.

Effective February 1, 2009, all tobacco products are prohibited at all Michigan Department of Corrections Facilities. This includes Contractors/drivers who will be prohibited from bringing in personal tobacco products to these locations. Facilities will provide a lock box for personal tobacco products in the Sallyport. Contractors that come into the Administration Building of a Facility will need to secure their personal tobacco products in their vehicle prior to entrance. If Contractors arrive with such products, the Contractors will not be allowed to place the products in the visitor lockers, but will be requested to return it to their vehicle. Delivery vehicles that carry tobacco products for other organizations will not be allowed to bring such products into the Facilities.

All cellular devices are prohibited from all correctional facilities.

Unless specified otherwise below, delivery is governed by Section 2.8.2, Delivery Responsibilities.

Prices are "F.O.B. Destination, within Government Premises" with transportation charges prepaid on all orders that meet the minimum order requirement specified in Section 1.4.2, Minimum Order.

Freight Charges - If the State orders below the minimum order requirement specified in Section 1.4.2, Minimum Order, the Contractor must specify the carrier being used.

Where the weight of the shipment is less than 150 lbs. or where shipments could be separated into smaller parcels, the Contractor must use the State's current express delivery carrier, which is UPS. If the shipment weighs less than 150 lbs., but the Deliverable costs \$3000 or more, it must be sent by an appropriate carrier.

If the Contractor fails to follow these shipping instructions, the State will pay the carrier used and deduct the difference from the Contractor's invoice for the amount that was charged and the amount that would have been charged if the required carrier had been used.



1.4.6 Acceptance Process

The acceptance process is defined in Section 2.8.4, Acceptance of Deliverable(s), unless otherwise defined in this section.

Goods delivered shall meet the Contract Compliance Inspector's approval.

1.4.7 Criteria

The State will use the following criteria to determine acceptance of Deliverable(s):

The Contractor shall provide timely delivery of all quaternary ammonium derivatives and chemicals ordered. Timely delivery is within five (5) calendar days after receipt of order.

1.5 Proposal Pricing

1.5.1 Pricing

MDOC/MSI will issue a Request for Quote (RFQ) by e-mail to the pre-qualified Contractors to submit pricing for the quaternary ammonium derivatives and chemicals required, at which time pricing will be evaluated.

1.5.2 Quick Payment Terms

No quick payment discount will be offered.

1.5.3 Price Term

Pricing negotiated on future purchase orders placed by the agency will remain firm for the entire length of the individual purchase request.

1.5.4 Tax Excluded from Price

(a) Sales Tax: The State is exempt from sales tax for direct purchases. The Contractor's prices must not include sales tax. DTMB-Purchasing Operations will furnish exemption certificates for sales tax upon request.

(b) Federal Excise Tax: The State may be exempt from Federal Excise Tax, or the taxes may be reimbursable, if articles purchased under any resulting Contract are used for the State's exclusive use. Certificates showing exclusive use for the purposes of substantiating a tax-free, or tax-reimbursable sale will be sent upon request. If a sale is tax exempt or tax reimbursable under the Internal Revenue Code, the Contractor's prices must not include the Federal Excise Tax.

1.5.5 Invoices

Invoices at a minimum must include:

- (a) Agency name and address
- (b) Date
- (c) PO #
- (d) Quantity issued of each item
- (e) Stock number and brief description of each item
- (f) Unit Price and extended price of each item
- (g) Shipping Cost (if any)
- (h) Total Price

1.6 Commodity Requirements

1.6.1 Customer Service

Orders will be sent by either electronically, phone, facsimile transmission, or by written order. The Contractor must have internal controls, approved by DTMB-Purchasing Operations, to: (a) ensure that only authorized individuals place orders; and (b) verify any orders that appear to be abnormal.



The Contractor must have: (a) one or more knowledgeable individual(s) specifically assigned to State of Michigan accounts that will respond to State agency inquiries promptly; and (b) a statewide toll-free number for customer service calls. If not, the Contractor must explain how it intends to provide customer service.

1.6.2 Research and Development - Deleted, Not Applicable

1.6.3 Quality Assurance Program – Deleted, Not Applicable

1.6.4 Warranty for Deliverable(s) – Deleted, Not Applicable

1.6.5 Special Incentives – Deleted, Not Applicable

1.6.6 Energy Efficiency – Deleted, Not Applicable

1.6.7 Environmental Requirements – Deleted, Not Applicable

1.6.8 Recycled Content and Recyclability

(a) **Deliverable(s).**

- 0% (total estimated percentage of recovered material)
- 0% (estimated percentage of post-consumer material)
- 0% (estimated percentage of post-industrial waste)

(b) **Packaging.** The State prefers packaging materials that:

- (i) are made from recycled content that meets or exceeds all federal and state recycled content guidelines (currently 35% post-consumer for all corrugated cardboard);
- (ii) minimize or eliminate the use of polystyrene and other difficult to recycle materials;
- (iii) minimize or eliminate the use of packaging and containers or, in the alternative, minimize or eliminate the use of non-recyclable packaging and containers;
- (iv) provide for a return program where packaging can be returned to a specific location for recycling; and
- (v) contain materials that are easily recyclable in Michigan.

1.6.9 Materials Identification and Tracking

(a) **Hazardous Chemical Identification.** Material Safety Data Sheets must be submitted in accordance with the federal Emergency Planning and Community Right-to-Know Act, 42 USC 11001 *et seq.*, as amended. This list must be updated whenever any other chemical to be delivered is hazardous.

Chemical (if none, enter 'None')	Identification Number
See Attachment B	

(b) **Mercury Content.** Under MCL 18.1261d, all products containing mercury must be labeled as containing mercury.

(c) **Brominated Flame Retardants.** The State prefers to purchase products that do not contain brominated flame retardants (BFRs) whenever possible.

(d) **Environmental Permits and Requirements.** The Contractor must disclose whether any of its facilities are in violation of any environmental laws. The Contractor must immediately notify DTMB-Purchasing Operations of the receipt of any EPA, State, or local agency communication indicating that any of the Contractor's facilities are in violation of applicable environmental laws.



1.7 Extended Purchasing

1.7.1 MiDEAL - Deleted, Not Applicable

1.7.2 State Employee Purchases - Deleted, Not Applicable



Article 2 – Terms and Conditions

2.1 Contract Term

2.1.1 Contract Term

This Contract term is from approximately May 3, 2011 through April 30, 2014. All outstanding Purchase Orders will expire upon the termination of this Contract for any of the reasons listed in Section 2.16, Termination by the State, unless otherwise agreed to in writing by DTMB-Purchasing Operations. Absent an early termination, Purchase Orders issued, but not expired, by the end of this Contract's term will remain in effect until the next September 30.

2.1.2 Options to Renew

This Contract may be renewed for up to two (2) additional one (1) year period(s). Renewal must be by mutual written agreement of the parties, not less than 30 days before expiration of the Contract.

2.2 Payments and Taxes

2.2.1 Fixed Prices for Deliverable(s)

Prices are fixed for all Deliverable(s) and for all of the associated payment milestones and amounts.

2.2.2 Payment Deadlines

Undisputed invoices will be due and payable by the State, in accordance with the State's standard payment procedure as specified in 1984 PA 279, MCL 17.51 *et seq.*, within 45 days after receipt.

2.2.3 Invoicing and Payment – In General - Deleted, Not Applicable

2.2.4 Pro-ration - Deleted, Not Applicable

2.2.5 Final Payment and Waivers

The Contractor's acceptance of final payment by the State constitutes a waiver of all claims by the Contractor against the State for payment under this Contract, other than those claims previously filed in writing on a timely basis and still disputed. For other claims, final payment by the State will not constitute a waiver by either party of any rights as to the other party's continuing obligations, nor will it constitute a waiver of any claims under this Contract, including claims for Deliverable(s) not reasonably known to be defective or substandard.

2.2.6 Electronic Payment Requirement

As required by MCL 18.1283a, the Contractor must electronically register with the State at <http://www.michigan.gov/cpexpress> to receive electronic fund transfer (EFT) payments.

2.2.7 Employment Taxes

The Contractor must collect and pay all applicable federal, state, and local employment taxes.

2.2.8 Sales and Use Taxes

The Contractor must register and remit sales and use taxes on taxable sales of tangible personal property or services delivered into the State. If the Contractor lacks sufficient presence in Michigan to be required to register and pay taxes, it must do so on a voluntary basis. The requirement to register and remit sales and use taxes extends to (a) all members of a "controlled group of corporations" as defined in § 1563(a) of the Internal Revenue Code, 26 USC 1563(a), and applicable regulations; and (b) all organizations under common control that make sales at retail for delivery into the State. Any United States Department of Treasury regulation that references "two or more trades or businesses under common control" includes organizations such as sole proprietorships, partnerships (as defined in § 7701(a)(2) of the Internal Revenue Code, 26 USC 7701(a)(2)), trusts, estates, corporations, or limited liability companies.

2.3 Contract Administration



2.3.1 Issuing Office

This Contract is issued by DTMB-Purchasing Operations on behalf of MDOC/MSI (State). **DTMB-Purchasing Operations is the only entity authorized to modify the terms and conditions of this Contract, including the prices and specifications.** The Contract Administrator within DTMB-Purchasing Operations for this Contract is:

Kristen Robel, Buyer
Purchasing Operations
Department of Technology, Management and Budget
Mason Bldg, 2nd Floor
PO Box 30026
Lansing, MI 48909
RobelK@michigan.gov
(517) 373-7396

2.3.2 Contract Compliance Inspector

The Contract Compliance Inspector, named below, will monitor and coordinate Contract activities on a day-to-day basis. However, monitoring of this Contract implies **no authority to modify the terms and conditions of this Contract, including the prices and specifications.**

Jeff Barrett, Area Manager
Michigan Department of Corrections
Ryan Correctional Facility
MSI Janitorial Factory
17600 Ryan Rd.
Detroit, MI 48212
BarretJW@michigan.gov
Phone: (313) 368-3200 ext. 51412
Fax: (313) 368-2413

2.3.3 Project Manager

The Project Managers, named below, will oversee the project. However, management of the project implies **no authority to modify the terms and conditions of this Contract, including the prices and specifications.**

Lisa Lehnert, Buyer
Michigan Department of Corrections
206 E. Michigan Ave.
Lansing, MI 48933
lehnerla@michigan.gov
Phone: (517) 335-4904
Fax: (517) 241-5092

2.3.4 Contract Changes

(a) If the State requests or directs the Contractor to provide any Deliverable(s) that the Contractor believes are outside the scope of the Contractor's responsibilities under this Contract, the Contractor must notify the State before performing the requested activities. If the Contractor fails to notify the State, any activities performed will be considered in-scope and not entitled to additional compensation or time. If the Contractor begins work outside the scope of this Contract and then ceases performing that work, the Contractor must, at the request of the State, retract any out-of-scope work that would adversely affect the Contract.

(b) The State or the Contractor may propose changes to this Contract. If the Contractor or the State requests a change to the Deliverable(s) or if the State requests additional Deliverable(s), the Contractor must provide a detailed outline of all work to be done, including tasks, timeframes, listing of key personnel assigned, estimated hours for each individual per Deliverable, and a complete and detailed cost justification. If



the parties agree on the proposed change, DTMB-Purchasing Operations will prepare and issue a notice that describes the change, its effects on the Deliverable(s), and any affected components of this Contract (Contract Change Notice).

(c) No proposed change may be performed until DTMB-Purchasing Operations issues a duly executed Contract Change Notice for the proposed change.

2.3.5 Price Changes

MDOC/MSI will issue a Request for Quote (RFQ) by e-mail to the pre-qualified Contractors to submit pricing for the quaternary ammonium derivatives and chemicals required, at which time pricing will be evaluated.

2.3.6 Notices

All notices and other communications required or permitted under this Contract must be in writing and will be considered given when delivered personally, by fax (if provided) by e-mail (if provided), or by registered mail, return receipt requested, addressed as follows (or any other address that is specified in writing by either party):

If to State:

State of Michigan
DTMB-Purchasing Operations
Attention: Kristen Robel
PO Box 30026
530 West Allegan
Lansing, MI 48909
RobelK@michigan.gov
Phone; 517-373-7396
Fax: 517-373-0046

If to the Contractor:

Angela Zapoli-Davis
PVS Nolwood Chemicals
10900 Harper Avenue
Detroit, Michigan 48213
azapoli@pvschemicals.com
Phone: 313-925-0300
Fax: 313-571-2225

Delivery by a nationally recognized overnight express courier will be treated as personal delivery.

2.3.7 Covenant of Good Faith

Each party must act reasonably and in good faith. Unless otherwise provided in this Contract, the parties will not unreasonably delay, condition or withhold their consent, decision, or approval any time it is requested or reasonably required in order for the other party to perform its responsibilities under this Contract.

2.3.8 Assignments

(a) Neither party may assign this Contract, or assign or delegate any of its duties or obligations under this Contract, to another party (whether by operation of law or otherwise), without the prior approval of the other party. The State may, however, assign this Contract to any other State agency, department, or division without the prior approval of the Contractor.

(b) If the Contractor intends to assign this Contract or any of the Contractor's rights or duties under the Contract, the Contractor must notify the State and provide adequate information about the assignee at least 90 days before the proposed assignment or as otherwise provided by law or court order. The State may withhold approval from proposed assignments, subcontracts, or novations if the State determines, in its sole discretion, that the transfer of responsibility would decrease the State's likelihood of receiving performance on this Contract or the State's ability to recover damages.



(c) If the State permits an assignment of the Contractor's right to receive payments, the Contractor is not relieved of its responsibility to perform any of its contractual duties. All payments must continue to be made to one entity.

2.3.9 Equipment - Deleted, Not Applicable

2.3.10 Facilities - Deleted, Not Applicable

2.4 Contract Management

2.4.1 Contractor Personnel Qualifications

All persons assigned by the Contractor to perform work must be employees of the Contractor or its majority-owned subsidiaries, or a State-approved Subcontractor, and must be fully qualified to perform the work assigned to them. The Contractor must include this requirement in any subcontract.

2.4.2 Contractor Key Personnel - Deleted, Not Applicable

2.4.3 Removal or Reassignment of Personnel at the State's Request

The State may require the Contractor to remove or reassign personnel if the State has legitimate, good-faith reasons articulated in a notice to the Contractor. Replacement personnel must be fully qualified for the position. If the State exercises this right, and the Contractor cannot immediately replace the removed personnel, the State agrees to an equitable adjustment in schedule or other terms that may be affected.

2.4.4 Contractor Personnel Location - Deleted, Not Applicable

2.4.5 Contractor Identification

The Contractor's employees must be clearly identifiable while on State property by wearing a State-issued badge, and must clearly identify themselves and the company they work for whenever making contact with State personnel by telephone or other means.

2.4.6 Cooperation with Third Parties

The Contractor and its Subcontractors must cooperate with the State and its agents and other contractors, including the State's quality assurance personnel. The Contractor must provide reasonable access to its personnel, systems, and facilities related to this Contract to the extent that access will not interfere with or jeopardize the safety or operation of the systems or facilities.

2.4.7 Relationship of the Parties

The relationship between the State and Contractor is that of client and independent contractor. No agent, employee, or servant of the Contractor, or any of its subcontractors, is an employee, agent or servant of the State. The Contractor will be solely and entirely responsible for its acts and the acts of its agents, employees, servants, and subcontractors during the performance of the Contract.

2.4.8 Contractor Return of State Equipment/Resources - Deleted, Not Applicable

2.4.9 Background Checks

The State may investigate the Contractor's personnel before granting access to State facilities and systems. The scope of the background check is at the discretion of the State and the results will be used to determine eligibility for working within State facilities and systems. The investigations will include a Michigan State Police background check (ICHAT) and may include a Criminal Justice Information Services (CJIS) fingerprint check. Proposed Contractor personnel may be required to complete and submit an RI-8 Fingerprint Card for the CJIS fingerprint check.



2.4.10 Compliance With State Policies

All Contractor personnel must comply with the State's security and acceptable use policies for State IT equipment and resources, available at <http://www.michigan.gov/pccpolicy>. Contractor personnel must agree to the State's security and acceptable use policies before the State grants access to its IT equipment and resources. The Contractor must provide these policies to prospective personnel before requesting access from the State. Contractor personnel must comply with all physical security procedures in State facilities.

2.5 Subcontracting by Contractor

2.5.1 Contractor Responsible

The Contractor is responsible for the completion of all Deliverable(s). The State will consider the Contractor to be the sole point of contact with regard to all contractual matters, including payment of any charges for Deliverable(s). The Contractor must make all payments to its Subcontractors or suppliers. Except as otherwise agreed in writing, the State is not obligated to make payments for the Deliverable(s) to any party other than the Contractor.

2.5.2 State Approval of Subcontractor

(a) The Contractor may not delegate any duties under this Contract to a Subcontractor unless DTMB-Purchasing Operations gives prior approval to the delegation. Attached as **Exhibit A** is a list of the Subcontractors, if any, approved by the State as of the Effective Date. The State is entitled to receive copies of and review all subcontracts. The Contractor may delete or redact any proprietary information before providing it to the State.

(b) The State may require the Contractor to terminate and replace any Subcontractor the State reasonably finds unacceptable. The required replacement of a Subcontractor must be written and contain reasonable detail outlining the State's reasons. If the State exercises this right, and the Contractor cannot immediately replace the Subcontractor, the State will agree to an equitable adjustment in the schedule or other terms that may be affected by the State's required replacement. If this requirement results in a delay, the delay will not be counted against any applicable Service Level Agreement (SLA).

2.5.3 Subcontract Requirements

Except where specifically approved by the State, Contractor must include the obligations in Sections 2.24.2, Media Releases, 2.4, Contract Management, 2.11, Confidentiality, 2.12, Records and Inspections, 2.13, Warranties, 2.14, Insurance, and 2.23, Laws, in all of its agreements with Subcontractors.

2.5.4 Competitive Selection

Contractor must select Subcontractors (including suppliers) on a competitive basis to the maximum practical extent consistent with the objectives and requirements of this Contract.

2.6 Reserved

2.7 Performance

2.7.1 Time of Performance

(a) The Contractor must immediately notify the State upon becoming aware of any circumstances that may reasonably be expected to jeopardize the completion of any Deliverable(s) by the scheduled due dates in the latest State-approved delivery schedule and must inform the State of the projected actual delivery date.

(b) If the Contractor believes that a delay in performance by the State has caused or will cause the Contractor to be unable to perform its obligations according to specified Contract time periods, the Contractor must immediately notify the State and, to the extent practicable, continue to perform its obligations according to the Contract time periods. The Contractor will not be in default for a delay in performance to the extent the delay is caused by the State.

2.7.2 Service Level Agreements - Deleted, Not Applicable



2.7.3 Liquidated Damages - Deleted, Not Applicable

2.7.4 Excusable Failure

Neither party will be liable for any default, damage or delay in the performance of its obligations that is caused by government regulations or requirements, power failure, electrical surges or current fluctuations, war, forces of nature or acts of God, delays or failures of transportation, equipment shortages, suppliers' failures, acts or omissions of common carriers, fire, riots, civil disorders, labor disputes, embargoes, injunctions (provided the injunction was not issued as a result of any fault or negligence of the party seeking to have its default or delay excused), or any other cause beyond the reasonable control of a party; provided the non-performing party and any Subcontractors are without fault in causing the default or delay, and the default or delay could not have been prevented by reasonable precautions and cannot reasonably be circumvented by the non-performing party through the use of alternate sources, workaround plans, or other means, including disaster recovery plans.

If a party does not perform its contractual obligations for any of the reasons listed, the non-performing party will be excused from any further performance of its affected obligation(s) for as long as the circumstances prevail. The non-performing party must promptly notify the other party immediately after the excusable failure occurs, and when it abates or ends. Both parties must use commercially reasonable efforts to resume performance.

If any of the reasons listed substantially prevent, hinder, or delay the Contractor's performance of the Deliverable(s) for more than 10 Days, and the State reasonably determines that performance is not likely to be resumed within a period of time that is satisfactory to the State, the State may:

(a) procure the affected Deliverable(s) from an alternate source without liability for payment so long as the delay in performance continues; or (b) terminate any portion of this Contract so affected and equitably adjust charges payable to the Contractor to reflect those Deliverable(s) that are terminated. The State must pay for all Deliverable(s) for which Final Acceptance has been granted before the termination date.

The Contractor will not have the right to any additional payments from the State as a result of any Excusable Failure or to payments for Deliverable(s) not provided as a result of the Excusable Failure. The Contractor will not be relieved of a default or delay caused by acts or omissions of its Subcontractors except to the extent that a Subcontractor experiences an Excusable Failure and the Contractor cannot reasonably circumvent the effect of the Subcontractor's default or delay in performance through the use of alternate sources, workaround plans, or other means, including disaster recovery plans.

2.8 Acceptance of Deliverable(s)

2.8.1 Quality Assurance

By tendering any Deliverable to the State, the Contractor certifies to the State that (a) it has performed reasonable quality assurance activities; (b) it has performed any reasonable testing; and (c) it has corrected all material deficiencies discovered during the quality assurance activities and testing. To the extent that testing occurs at State Locations, the State is entitled to observe and otherwise participate in the testing.

2.8.2 Delivery Responsibilities

Unless otherwise specified by the State in Section 1.4.5, Delivery Term, the following are applicable to all deliveries:

- (a) The Contractor is responsible for delivering the Deliverable(s) by the applicable delivery date to the location(s) specified in the SOW or individual Purchase Order.
- (b) The Contractor must ship the Deliverable(s) "F.O.B. Destination, within Government Premises."
- (c) The State will examine all packages at the time of delivery. The quantity of packages delivered must be recorded and any obvious visible or suspected damage must be noted at the time of delivery using the shipper's delivery document(s) and appropriate procedures to record the damage.



2.8.3 Process for Acceptance of Deliverable(s)

The State's review period for acceptance of the Deliverable(s) is governed by the applicable Statement of Work, and if the Statement of Work does not specify the State's review period, it is by default 30 Days for a Deliverable (State Review Period). The State will notify the Contractor by the end of the State Review Period that either:

- (a) the Deliverable is accepted in the form delivered by the Contractor;
- (b) the Deliverable is accepted, but noted deficiencies must be corrected; or
- (c) the Deliverable is rejected along with notation of any deficiencies that must be corrected before acceptance of the Deliverable.

If the State delivers to the Contractor a notice of deficiencies, the Contractor will correct the described deficiencies and within 30 Days resubmit the Deliverable(s) with an explanation that demonstrates all corrections have been made to the original Deliverable(s). The Contractor's correction efforts will be made at no additional charge. Upon receipt of a corrected Deliverable from the Contractor, the State will have a reasonable additional period of time, not to exceed 30 Days, to accept the corrected Deliverable.

2.8.4 Acceptance of Deliverable(s)

(a) The State's obligation to comply with any State Review Period is conditioned on the timely delivery of the Deliverable(s). The State Review Period will begin on the first Business Day following the State's receipt of the Deliverable(s).

(b) The State may inspect the Deliverable to confirm that all components have been delivered without material deficiencies. If the State determines that the Deliverable or one of its components has material deficiencies, the State may reject the Deliverable without performing any further inspection or testing.

(c) The State will only approve a Deliverable after confirming that it conforms to and performs according to its specifications without material deficiency. The State may, in its discretion, conditionally approve a Deliverable that contains material deficiencies if the State elects to permit the Contractor to correct those deficiencies post-approval. The Contractor remains responsible for working diligently to correct, within a reasonable time at the Contractor's expense, all deficiencies in the Deliverable that remain outstanding at the time of State approval.

(d) If, after three opportunities the Contractor is unable to correct all deficiencies, the State may: (i) demand that the Contractor cure the failure and give the Contractor additional time to do so at the sole expense of the Contractor; (ii) keep this Contract in force and perform, either itself or through other parties, whatever the Contractor has failed to do, and recover the difference between the cost to cure the deficiency and the Contract price plus an additional amount equal to 10% of the State's cost to cure the deficiency; or (iii) fully or partially terminate this Contract for default by giving notice to the Contractor. Notwithstanding the foregoing, the State cannot use, as a basis for exercising its termination rights under this Section, deficiencies discovered in a repeat State Review Period that could reasonably have been discovered during a prior State Review Period.

(e) The State, at any time and in its reasonable discretion, may reject the Deliverable without notation of all deficiencies if the acceptance process reveals deficiencies in a sufficient quantity or of a sufficient severity that renders continuing the process unproductive or unworkable.

2.8.5 Process for Approval of Written Deliverable(s) - Deleted, Not Applicable

2.8.6 Process for Approval of Services - Deleted, Not Applicable

2.8.7 Final Acceptance

Unless otherwise stated in the Statement of Work, "Final Acceptance" of a Deliverable occurs when that Deliverable has been accepted by the State following the applicable State Review Period.

2.9 Ownership - Deleted, Not Applicable

2.10 State Standards - Deleted, Not Applicable



2.11 Confidentiality

2.11.1 Confidential Information

As used in this Section, "Confidential Information" means all information of the parties, except information that is:

- (a) disclosable under the Michigan Freedom Of Information Act (FOIA);
- (b) now available or becomes available to the public without breach of this Contract;
- (c) released in writing by the disclosing party;
- (d) obtained from a third party or parties having no obligation of confidentiality with respect to such information;
- (e) publicly disclosed pursuant to federal or state law; or
- (f) independently developed by the receiving party without reference to Confidential Information of the furnishing party.

2.11.2 Protection and Destruction of Confidential Information

(a) Each party must use the same care to prevent unauthorized disclosure of Confidential Information as it uses to prevent disclosure of its own information of a similar nature, but in no event less than a reasonable degree of care.

Neither the Contractor nor the State will: (i) make any use of the Confidential Information of the other except as contemplated by this Contract; (ii) acquire any interest or license in or assert any lien against the Confidential Information of the other; or (iii) if requested to do so, refuse for any reason to promptly return the other party's Confidential Information.

(b) Each party will limit disclosure of the other party's Confidential Information to employees, agents, and Subcontractors who must have access to fulfill the purposes of this Contract. Disclosure to, and use by, a Subcontractor is permissible where: (i) use of a Subcontractor is authorized under this Contract; (ii) the disclosure is necessary or otherwise naturally occurs in connection with work that is within the Subcontractor's scope of responsibility; and (iii) Contractor obligates the Subcontractor in a written contract to maintain the State's Confidential Information in confidence. At the State's request, any employee of Contractor and of any Subcontractor having access to the State's Confidential Information may be required to execute a separate agreement to be bound by the confidentiality requirements of this Section.

(c) Upon termination of this Contract, Contractor must promptly return the State's Confidential Information or certify to the State that Contractor has destroyed all of the State's Confidential Information.

2.11.3 Exclusions

The provisions of Section 2.11, Confidentiality, will not apply where the receiving party is required by law to disclose the other party's Confidential Information, provided that the receiving party: (i) promptly provides the furnishing party with notice of the legal request; and (ii) assists the furnishing party in resisting or limiting the scope of the disclosure as reasonably requested by the furnishing party.

2.11.4 No Obligation to Disclose

Nothing contained in Section 2.11, Confidentiality, will be construed as obligating a party to disclose any particular Confidential Information to the other party.

2.11.5 Security Breach Notification

If Contractor breaches this Section, it must (i) promptly cure any deficiencies in Contractor's internal security controls; and (ii) comply with any applicable federal and state laws and regulations pertaining to unauthorized disclosures. Contractor and the State will cooperate to mitigate, to the extent practicable, the effects of any breach, intrusion, or unauthorized access, use, or disclosure. Contractor must notify the State of any unauthorized use or disclosure of Confidential Information, whether suspected or actual, within 10 days of becoming aware of the use or disclosure or a shorter time period as is reasonable under the circumstances. The State may require Contractor to purchase credit monitoring services for any individuals affected by the breach.



2.12 Records and Inspections

2.12.1 Inspection of Work Performed

The State's authorized representatives, at reasonable times and with 10 days prior notice, have the right to enter the Contractor's premises or any other places where work is being performed in relation to this Contract. The representatives may inspect, monitor, or evaluate the work being performed, to the extent the access will not reasonably interfere with or jeopardize the safety or operation of Contractor's systems or facilities. The Contractor must provide reasonable assistance for the State's representatives during inspections.

2.12.2 Retention of Records

(a) The Contractor must retain all financial and accounting records related to this Contract for a period of seven years after the Contractor performs any work under this Contract (Audit Period).

(b) If an audit, litigation, or other action involving the Contractor's records is initiated before the end of the Audit Period, the Contractor must retain the records until all issues arising out of the audit, litigation, or other action are resolved or until the end of the Audit Period, whichever is later.

2.12.3 Examination of Records

The State, upon 10 days notice to the Contractor, may examine and copy any of the Contractor's records that relate to this Contract. The State does not have the right to review any information deemed confidential by the Contractor if access would require the information to become publicly available. This requirement also applies to the records of any parent, affiliate, or subsidiary organization of the Contractor, or any Subcontractor that performs services in connection with this Contract.

2.12.4 Audit Resolution

If necessary, the Contractor and the State will meet to review any audit report promptly after its issuance. The Contractor must respond to each report in writing within 30 days after receiving the report, unless the report specifies a shorter response time. The Contractor and the State must develop, agree upon, and monitor an action plan to promptly address and resolve any deficiencies, concerns, or recommendations in the report.

2.12.5 Errors

(a) If an audit reveals any financial errors in the records provided to the State, the amount in error must be reflected as a credit or debit on the next invoice and subsequent invoices until the amount is paid or refunded in full. However, a credit or debit may not be carried forward for more than four invoices or beyond the termination of this Contract. If a balance remains after four invoices, the remaining amount will be due as a payment or refund within 45 days of the last invoice on which the balance appeared or upon termination of this Contract, whichever is earlier.

(b) In addition to other available remedies, if the difference between the State's actual payment and the correct invoice amount, as determined by an audit, is greater than 10%, the Contractor must pay all reasonable audit costs.

2.13 Warranties

2.13.1 Warranties and Representations

The Contractor represents and warrants:

- (a) It is capable of fulfilling and will fulfill all of its obligations under this Contract. The performance of all obligations under this Contract must be provided in a timely, professional, and workmanlike manner and must meet the performance and operational standards required under this Contract.
- (b) The Contract appendices, attachments, and exhibits identify the equipment, software, and services necessary for the Deliverable(s) to comply with this Contract's requirements.
- (c) It is the lawful owner or licensee of any Deliverable licensed or sold to the State by Contractor or developed by the Contractor for this Contract, and Contractor has all of the rights necessary to convey to the State the ownership rights or licensed use, as applicable, of any Deliverable(s). None of the Deliverable(s) provided by Contractor to the State, nor their use by the State, will infringe the patent, trademark, copyright, trade secret, or other proprietary rights of any third party.
- (d) The Contract signatory has the authority to enter into this Contract on behalf of the Contractor.



- (e) It is qualified and registered to transact business in all locations where required.
- (f) Neither the Contractor nor any affiliates, nor any employee of either, has, will have, or will acquire, any interest that would conflict in any manner with the Contractor's performance of its duties and responsibilities to the State or otherwise create an appearance of impropriety with respect to the award or performance of this Contract. The Contractor must notify the State about the nature of any conflict or appearance of impropriety within two days of learning about it.
- (g) Neither the Contractor nor any affiliates, nor any employee of either, has accepted or will accept anything of value based on an understanding that the actions of the Contractor, its affiliates, or its employees on behalf of the State would be influenced. The Contractor must not attempt to influence any State employee by the direct or indirect offer of anything of value.
- (h) Neither the Contractor nor any affiliates, nor any employee of either, has paid or agreed to pay any person, other than bona fide employees and consultants working solely for the Contractor or the affiliate, any fee, commission, percentage, brokerage fee, gift, or any other consideration, contingent upon or resulting from the award or making of this Contract.
- (i) The Contractor arrived at its proposed prices independently, without communication or agreement with any other Contractor for the purpose of restricting competition. The Contractor did not knowingly disclose its quoted prices for this Contract to any other Contractor before the award of the Contract. The Contractor made no attempt to induce any other person or entity to submit or not submit a proposal for the purpose of restricting competition.
- (j) All financial statements, reports, and other information furnished by the Contractor to the State in connection with the award of this Contract fairly and accurately represent the Contractor's business, properties, financial condition, and results of operations as of the respective dates covered by the financial statements, reports, or other information. There has been no material adverse change in the Contractor's business, properties, financial condition, or results of operation.
- (k) All written information furnished to the State by or for the Contractor in connection with the award of this Contract is true, accurate, and complete, and contains no false statement of material fact nor omits any material fact that would make the submitted information misleading.
- (l) It will immediately notify DTMB-Purchasing Operations if any of the certifications, representations, or disclosures made in the Contractor's original bid response change after this Contract is awarded.

2.13.2 Warranty of Merchantability

The Deliverable(s) provided by the Contractor must be merchantable.

2.13.3 Warranty of Fitness for a Particular Purpose

The Deliverable(s) provided by the Contractor must be fit for the purpose(s) identified in this Contract.

2.13.4 Warranty of Title

The Contractor must convey good title to any Deliverable(s) provided to the State. All Deliverable(s) provided by the Contractor must be delivered free from any security interest, lien, or encumbrance of which the State, at the time of contracting, has no knowledge. Deliverable(s) provided by the Contractor must be delivered free of any rightful claim of infringement by any third person.

2.13.5 Equipment Warranty - Deleted, Not Applicable

2.13.6 New Deliverable(s)

The Contractor must provide new Deliverable(s) where the Contractor knows or has the ability to select between new or like-new. Unless specified in Article 1, Statement of Work, equipment that is assembled from new or serviceable used parts that are like new in performance is acceptable only where the Contractor does not have knowledge or the ability to select one or the other.

2.13.7 Prohibited Products

Shipping of salvage, distressed, outdated, or discontinued goods to any State agency will be considered a material default by the Contractor. The brand and product number offered for all items will remain consistent for the term of this Contract, unless DTMB-Purchasing Operations has approved a change order under Section 2.3.4, Contract Changes.



2.13.8 Consequences For Breach

In addition to any remedies available in law, if the Contractor breaches any of the warranties contained in Section 2.13, Warranties, the breach may be considered a material default.

2.14 Insurance

2.14.1 Liability Insurance

For the purpose of this Section, "State" includes its departments, divisions, agencies, offices, commissions, officers, employees, and agents.

(a) The following apply to all insurance requirements:

- (i) The State, in its sole discretion, may approve the use of a fully-funded self-insurance program in place of any specified insurance identified in this Section.
- (ii) Where specific coverage limits are listed in this Section, they represent the minimum acceptable limits. If the Contractor's policy contains higher limits, the State is entitled to coverage to the extent of the higher limits. The minimum limits of coverage specified are not intended, and may not be construed to limit any liability or indemnity of the Contractor to any indemnified party or other persons.
- (iii) If the Contractor fails to pay any premium for a required insurance policy, or if any insurer cancels or significantly reduces any required insurance without the State's approval, the State may, after giving the Contractor at least 30 days notice, pay the premium or procure similar insurance coverage from another company or companies. The State may deduct any part of the cost from any payment due the Contractor, or require the Contractor to pay that cost upon demand.
- (iv) In the event the State approves the representation of the State by the insurer's attorney, the attorney may be required to be designated as a Special Assistant Attorney General by the Michigan Attorney General.

(b) The Contractor must:

- (i) provide proof that it has obtained the minimum levels of insurance coverage indicated or required by law, whichever is greater. The insurance must protect the State from claims that are alleged or may arise or result from the Contractor's or a Subcontractor's performance, including any person directly or indirectly employed by the Contractor or a Subcontractor, or any person for whose acts the Contractor or a Subcontractor may be liable.
- (ii) waive all rights against the State for the recovery of damages that are covered by the insurance policies the Contractor is required to maintain under this Section. The Contractor's failure to obtain and maintain the required insurance will not limit this waiver.
- (iii) ensure that all insurance coverage provided relative to this Contract is primary and non-contributing to any comparable liability insurance (including self-insurance) carried by the State.
- (iv) obtain insurance, unless the State approves otherwise, from any insurer that has an A.M. Best rating of "A" or better and a financial size of VII or better, or if those ratings are not available, a comparable rating from an insurance rating agency approved by the State. All policies of insurance must be issued by companies that have been approved to do business in the State.
- (v) maintain all required insurance coverage throughout the term of this Contract and any extensions. However, in the case of claims-made Commercial General Liability policies, the Contractor must secure tail coverage for at least three years following the termination of this Contract.
- (vi) pay all deductibles.
- (vii) pay for and provide the type and amount of insurance checked below:

(A) Commercial General Liability Insurance

Minimal Limits:

- \$2,000,000 General Aggregate Limit other than Products/Completed Operations;
- \$2,000,000 Products/Completed Operations Aggregate Limit;
- \$1,000,000 Personal & Advertising Injury Limit; and
- \$1,000,000 Each Occurrence Limit.

Deductible maximum:

\$50,000 Each Occurrence

Additional Requirements:

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents as additional insureds on the Commercial General Liability certificate. The Contractor also agrees to provide evidence that insurance policies contain a waiver of subrogation by the insurance company.

(B) Motor Vehicle Insurance

Minimal Limits:

If a motor vehicle is used in relation to the Contractor's performance, the Contractor must have vehicle liability insurance on the motor vehicle for bodily injury and property damage as required by law.

Additional Requirements:

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents as additional insureds on the vehicle liability certificate. The Contractor must also provide evidence that insurance policies contain a waiver of subrogation by the insurance company.

(C) Workers' Compensation Insurance

Minimal Limits:

The Contractor must provide Workers' Compensation coverage according to applicable laws governing work activities in the state of the Contractor's domicile. If the applicable coverage is provided by a self-insurer, the Contractor must provide proof of an approved self-insured authority by the jurisdiction of domicile.

For employees working outside of the state of the Contractor's domicile, the Contractor must provide certificates of insurance proving mandated coverage levels for the jurisdictions where the employees' activities occur.

Additional Requirements:

The Contractor must provide the applicable certificates of insurance and a list of states where the coverage is applicable. Contractor must provide proof that the Workers' Compensation insurance policies contain a waiver of subrogation by the insurance company, except where such a provision is prohibited or limited by the laws of the jurisdiction in which the work is to be performed.

(D) Employers Liability Insurance

Minimal Limits:

\$100,000 Each Accident;
 \$100,000 Each Employee by Disease
 \$500,000 Aggregate Disease

Additional Requirements:

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents as additional insureds on the certificate.

2.14.2 Subcontractor Insurance Coverage

Except where the State has approved a subcontract with other insurance provisions, the Contractor must require any Subcontractor to purchase and maintain the insurance coverage required in Section 2.14.1, Liability Insurance. Alternatively, the Contractor may include a Subcontractor under the Contractor's insurance on the coverage required in that Section. The failure of a Subcontractor to comply with insurance requirements does not limit the Contractor's liability or responsibility.



2.14.3 Certificates of Insurance and Other Requirements

Before this Contract is signed, and not less than 20 days before the insurance expiration date every year thereafter, the Contractor must provide evidence that the State and its agents, officers, and employees are listed as additional insureds under each commercial general liability and commercial automobile liability policy. The Contractor must provide DTMB-Purchasing Operations with all applicable certificates of insurance verifying insurance coverage or providing satisfactory evidence of self-insurance as required in Section 2.14.1, Liability Insurance. Each certificate must be on the standard "accord" form or equivalent and MUST CONTAIN THE APPLICABLE CONTRACT OR PURCHASE ORDER NUMBER. Each certificate must be prepared and submitted by the insurer and must contain a provision indicating that the coverage afforded will not be cancelled, materially changed, or not renewed without 30 days prior notice, except for 10 days for nonpayment of premium, to the Director of DTMB-Purchasing Operations. The notice to the Director of DTMB-Purchasing Operations must include the applicable Contract or Purchase Order number.

2.15 Indemnification

2.15.1 General Indemnification

To the extent permitted by law, the Contractor must indemnify, defend, and hold the State harmless from liability, including all claims and losses, and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest and penalties), accruing or resulting to any person, firm, or corporation that may be injured or damaged by the Contractor in the performance of this Contract and that are attributable to the negligence or tortious acts of the Contractor, any of its subcontractors, or by anyone else for whose acts any of them may be liable.

2.15.2 Code Indemnification - Deleted, Not Applicable

2.15.3 Employee Indemnification

In any claims against the State, its departments, agencies, commissions, officers, employees, and agents, by any employee of the Contractor or any of its subcontractors, the indemnification obligation will not be limited in any way by the amount or type of damages, compensation, or benefits payable by or for the Contractor or any of its subcontractors under worker's disability compensation acts, disability benefit acts, or other employee benefit acts. This indemnification clause is intended to be comprehensive. Any overlap in provisions, or the fact that greater specificity is provided as to some categories of risk, is not intended to limit the scope of indemnification under any other provisions.

2.15.4 Patent/Copyright Infringement Indemnification

(a) To the extent permitted by law, the Contractor must indemnify and hold the State harmless from liability, including all claims and losses, and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest, and penalties) resulting from any action threatened or brought against the State to the extent that the action is based on a claim that any piece of equipment, software, commodity, or service supplied by the Contractor or its subcontractors, or its operation, use, or reproduction, infringes any United States patent, copyright, trademark or trade secret of any person or entity.

(b) If, in the State's or the Contractor's opinion, any piece of equipment, software, commodity or service supplied by the Contractor or its subcontractors, or its operation, use, or reproduction, is likely to become the subject of an infringement claim, the Contractor must, at its expense: (i) procure for the State the right to continue using the equipment, software, commodity or service or, if this option is not reasonably available to the Contractor; (ii) replace or modify to the State's satisfaction the same with equipment, software, commodity or service of equivalent function and performance so that it becomes non-infringing, or, if this option is not reasonably available to Contractor; (iii) accept its return by the State with appropriate credits to the State against the Contractor's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

(c) Notwithstanding the foregoing, the Contractor has no obligation to indemnify or defend the State for, or to pay any costs, damages or attorneys' fees related to, any infringement claim based upon: (i) equipment, software, commodity or service developed based on written specifications of the State; (ii) use of



the equipment, software, or commodity in a configuration other than implemented or approved by the Contractor, including any modification of the same by the State; or (iii) the combination, operation, or use of the equipment, software, or commodity with equipment, software, or commodities not supplied by the Contractor under this Contract.

2.15.5 Continuing Obligation

The Contractor's duty to indemnify under Section 2.15, Indemnification, continues in full force and effect, notwithstanding the expiration or early cancellation of this Contract, with respect to any claims based on facts or conditions that occurred before expiration or cancellation.

2.15.6 Indemnification Procedures

These procedures apply to all indemnity obligations:

(a) After the State receives notice of an action or proceeding involving a claim for which it will seek indemnification, the State must promptly notify the Contractor of the claim and take, or assist the Contractor in taking, any reasonable action to avoid a default judgment against the Contractor. Failure to notify the Contractor does not relieve the Contractor of its indemnification obligations except to the extent that the Contractor can prove damages attributable to the notification failure. Within 10 days following receipt of notice from the State relating to any claim, the Contractor must notify the State whether the Contractor agrees to assume control of the defense and settlement of that claim (a "Notice of Election"). After notifying the Contractor of a claim and before the State receives the Contractor's Notice of Election, the State is entitled to defend against the claim, at the Contractor's expense, and the Contractor will be responsible for any reasonable costs, including attorney fees, incurred by the State in defending against the claim during that period.

(b) If the Contractor delivers a Notice of Election relating to any claim: (i) the State is entitled to participate in the defense of the claim and to employ counsel at its own expense to assist in handling the claim and to monitor and advise the State about the status and progress of the defense; (ii) the Contractor must, at the request of the State, demonstrate the Contractor's financial ability to carry out its defense and indemnity obligations under this Contract; (iii) the Contractor must periodically advise the State about the status and progress of the defense and must obtain prior approval of the State before entering into any settlement of the claim or ceasing to defend against the claim; and (iv) to the extent that any principles of Michigan governmental or public law may be involved or challenged, the State has the right, at its own expense, to control the defense of that portion of the claim. The State may retain control of the defense and settlement of a claim by notifying the Contractor within 10 days after the State's receipt of the Contractor's information requested by the State under clause (ii) of this paragraph, if the State determines that the Contractor has failed to demonstrate to the reasonable satisfaction of the State the Contractor's financial ability to carry out its defense and indemnity obligations under this Section. Any litigation activity on behalf of the State, or any of its subdivisions under this Section, must be coordinated with the Department of Attorney General. In the event the insurer's attorney represents the State under this Section, the insurer's attorney may be required to be designated as a Special Assistant Attorney General by the Attorney General of the State of Michigan.

(c) If the Contractor does not deliver a Notice of Election relating to any claim of which it is notified, the State may defend the claim in a manner it deems appropriate, at the cost and expense of the Contractor. If it is determined that the claim was one against which the Contractor was required to indemnify the State, upon request of the State, the Contractor must promptly reimburse the State for all reasonable costs and expenses.

2.15.7 Limitation of Liability

Neither the Contractor nor the State is liable to each other, regardless of the form of action, for consequential, incidental, indirect, or special damages. This limitation of liability does not apply to claims for infringement of United States patent, copyright, trademark or trade secrets; to claims for personal injury or damage to property caused by the gross negligence or willful misconduct of the Contractor; to claims covered by other specific provisions of this Contract calling for liquidated damages; or to court costs or attorneys' fees awarded by a court in addition to damages after litigation based on this Contract.

The Contractor's liability for damages to the State is limited to two times the value of this Contract or \$500,000 which ever is higher. The foregoing limitation of liability does not apply to claims for infringement of United



States patent, copyright, trademarks or trade secrets; to claims for personal injury or damage to property caused by the gross negligence or willful misconduct of the Contractor; to claims covered by other specific provisions of this Contract calling for liquidated damages; or to court costs or attorneys' fees awarded by a court in addition to damages after litigation based on this Contract.

The State's liability for damages to the Contractor is limited to the value of the Contract.

2.16 Termination by the State

2.16.1 Notice and Right to Cure

If the Contractor breaches the Contract, and the State, in its sole discretion, determines that the breach is curable, the State will provide the Contractor notice of the breach and a period of at least 30 days to cure the breach. The State does not need to provide notice or an opportunity to cure for successive or repeated breaches or if the State determines, in its sole discretion, that a breach poses a serious and imminent threat to the health or safety of any person or the imminent loss, damage, or destruction of any real or tangible personal property.

2.16.2 Termination for Cause

(a) The State may fully or partially terminate this Contract for cause by notifying the Contractor if the Contractor: (i) breaches any of its material duties or obligations (including a Chronic Failure to meet any SLA); or (ii) fails to cure a breach within the time period specified in a notice of breach provided by the State.

(b) The Contractor must pay all reasonable costs incurred by the State in terminating this Contract for cause, including administrative costs, attorneys' fees and court costs, and any additional costs the State incurs to procure the Deliverable(s) from other sources. Re-procurement costs are not consequential, indirect, or incidental damages, and cannot be excluded by any other terms otherwise included in this Contract, provided the costs are not in excess of 50% more than the prices for the Deliverable(s).

(c) If the State partially terminates this Contract for cause, any charges payable to the Contractor will be equitably adjusted to reflect those Deliverable(s) that are terminated. The State must pay for all Deliverable(s) for which Final Acceptance has been granted before the termination date. Any services or related provisions of this Contract that are terminated for cause must cease on the effective date of the termination.

(d) If the State terminates this Contract for cause and it is determined, for any reason, that the Contractor was not in breach of this Contract, the termination will be deemed to have been a termination under Section 2.16.3, Termination for Convenience, effective as of the same date, and the rights and obligations of the parties will be limited to those provided in that Section.

2.16.3 Termination for Convenience

The State may fully or partially terminate this Contract for its convenience if the State determines that a termination is in the State's best interest. Reasons for the termination are within the sole discretion of the State and may include: (a) the State no longer needs the Deliverable(s) specified in this Contract; (b) a relocation of office, program changes, or changes in laws, rules, or regulations make the Deliverable(s) no longer practical or feasible for the State; (c) unacceptable prices for Contract changes; or (d) falsification or misrepresentation, by inclusion or non-inclusion, of information material to a response to any RFP issued by the State. The State may terminate this Contract for its convenience by giving Contractor notice at least 30 days before the date of termination.

If the State chooses to terminate this Contract in part, any charges payable to the Contractor must be equitably adjusted to reflect those Deliverable(s) that are terminated.

2.16.4 Termination for Non-Appropriation

(a) If this Contract extends for more than one fiscal year, continuation of this Contract is subject to the appropriation or availability of funds. If sufficient funds to enable the State to continue payment are not appropriated or otherwise made available, the State must fully or partially terminate this Contract at the end of the last period for which funds have been appropriated or otherwise made available. The State must give the Contractor notice at least 30 days before the date of termination, unless the State receives notice of the non-



appropriation or unavailability less than 30 days before the end of the last period for which funds have been appropriated or otherwise made available.

(b) If funding for this Contract is reduced by law, or funds to pay the Contractor for the Deliverable(s) are not appropriated or are otherwise unavailable, the State may, upon 30 days notice to the Contractor, change the Deliverable(s) in the manner and for the periods of time the State may elect. The charges payable under this Contract will be equitably adjusted to reflect any Deliverable(s) not provided because of the reduction.

(c) If the State fully or partially terminates this Contract for non-appropriation, the State must pay the Contractor for all work-in-progress performed through the effective date of the termination to the extent funds are available.

2.16.5 Termination for Criminal Conviction

The State may terminate this Contract immediately and without further liability or penalty if the Contractor, an officer of the Contractor, or an owner of a 25% or greater share of the Contractor is convicted of a criminal offense related to a State, public, or private Contract or subcontract.

2.16.6 Termination for Approvals Rescinded

The State may terminate this Contract if any final administrative or judicial decision or adjudication disapproves a previously approved request for purchase of personal services under Constitution 1963, Article 11, § 5, and Civil Service Rule 7-1. In that case, the State will pay the Contractor for all work-in-progress performed through the effective date of the termination. This Contract may be fully or partially terminated and will be effective as of the date stated in the notice.

2.16.7 Rights and Obligations upon Termination

(a) If the State terminates this Contract for any reason, the Contractor must:

(i) stop all work as specified in the notice of termination;

(ii) take any action that may be necessary, or that the State may direct, to preserve and protect Deliverable(s) or other State property in the Contractor's possession;

(iii) return all materials and property provided directly or indirectly to the Contractor by any entity, agent, or employee of the State;

(iv) transfer title in and deliver to the State, unless otherwise directed, all Deliverable(s) intended to be transferred to the State at the termination of this Contract (which will be provided to the State on an "As-Is" basis except to the extent the State compensated the Contractor for warranty services related to the materials);

(v) to the maximum practical extent, take any action to mitigate and limit potential damages, including terminating or limiting subcontracts and outstanding orders for materials and supplies; and

(vi) take all appropriate action to secure and maintain State information confidentially in accordance with Section 2.11, Confidentiality.

(b) If the State terminates this Contract under Section 2.16.3, Termination for Convenience, the State must pay the Contractor all charges due for Deliverable(s) provided before the date of termination and, if applicable, as a separate item of payment, for work-in-progress, based on a percentage of completion determined by the State. All completed or partially completed Deliverable(s) prepared by the Contractor, at the option of the State, become the State's property, and the Contractor is entitled to receive equitable compensation for those Deliverable(s). Regardless of the basis for the termination, the State is not obligated to pay or otherwise compensate the Contractor for any lost expected future profits, costs, or expenses incurred with respect to Deliverable(s) not actually completed.

(c) If the State terminates this Contract for any reason, the State may assume, at its option, any subcontracts and agreements for Deliverable(s), and may pursue completion of the Deliverable(s) by replacement contract or as the State deems expedient.

2.16.8 Reservation of Rights

In the event of any full or partial termination of this Contract, each party reserves all rights or remedies otherwise available to the party.



2.16.9 Contractor Transition Responsibilities

If this Contract terminates under Section 2.16, Termination by the State, the Contractor must make reasonable efforts to transition the performance of the work, including all applicable equipment, services, software, and leases, to the State or a third party designated by the State within a reasonable period of time that does not exceed 30 days from the date of termination. The Contractor must provide any required reports and documentation.

2.16.10 Transition Payments

If the transition responsibilities outlined in Section 2.16.9, Contractor Transition Responsibilities, arise based on a termination of this Contract, reimbursement will be governed by the provisions of Section 2.16, Termination by the State. If the transition results from expiration, the Contractor will be reimbursed for all reasonable transition costs (i.e., costs incurred after the expiration within the time period in Section 2.16.9 that result from transition operations) at the Contract rates. The Contractor must prepare an accurate accounting from which the State and the Contractor may reconcile all outstanding accounts.

2.17 Termination by the Contractor

2.17.1 Termination

If the State breaches this Contract and the Contractor, in its sole discretion, determines that the breach is curable, and then the Contractor will provide the State with notice of the breach and a time period (not less than 30 days) to cure the breach.

The Contractor may terminate this Contract if the State: (a) materially breaches its obligation to pay the Contractor undisputed amounts due; (b) breaches its other obligations to an extent that makes it impossible or commercially impractical for the Contractor to complete the Deliverable(s); or (c) does not cure the breach within the time period specified in a notice of breach. The Contractor must discharge its obligations under Section 2.20, Dispute Resolution, before it terminates the Contract.

2.18 Stop Work

2.18.1 Stop Work Order - Deleted, Not Applicable

2.18.2 Termination of Stop Work Order Deleted, Not Applicable

2.18.3 Allowance of the Contractor's Costs - Deleted, Not Applicable

2.19 Reserved

2.20 Dispute Resolution

2.20.1 General

(a) The Contractor must submit any claim related to this Contract to the State under Section 2.3.6, Notices, together with all supporting documentation for the claim.

(b) The representatives of the Contractor and the State must meet as often as the parties reasonably deem necessary to gather and furnish to each other all information related to the claim.

(c) During the course of negotiations, each party will honor all reasonable requests made by the other for non-privileged information reasonably related to the claim.

2.20.2 Informal Dispute Resolution

(a) If, after a reasonable time following submission of a claim under Section 2.20.1, General, the parties are unable to resolve the claim, the parties must meet with the Director of DTMB-Purchasing Operations, or his or her designee, for the purpose of attempting to resolve the dispute without the need for formal legal proceedings.



(b) Within 60 calendar days of the meeting with the Director of DTMB-Purchasing Operations, or such other time as agreed to by the parties, the Director of DTMB-Purchasing Operations will issue a written recommendation regarding settlement of the claim. The Contractor must notify DTMB-Purchasing Operations within 21 days after the recommendation is issued whether the Contractor accepts or rejects the recommendation. Acceptance by the Contractor constitutes the final resolution of the claim addressed in the recommendation, and the Contractor may not assert that claim in any future litigation or other proceeding between the parties.

(c) The recommendation of the Director of DTMB-Purchasing Operations is not admissible in any future litigation or other proceeding between the parties. The conduct and statements made during the course of negotiations or dispute resolution under Section 2.20, Dispute Resolution, are subject to Michigan Rule of Evidence 408 and are not admissible in any future litigation or other proceeding between the parties.

(d) This section will not be construed to prohibit either party from instituting formal proceedings to avoid the expiration of any applicable limitations period, to preserve a superior position with respect to other creditors, or under Section 2.20.3, Injunctive Relief.

(e) DTMB-Purchasing Operations will not mediate disputes between the Contractor and any other entity, except State agencies, concerning responsibility for performance of work.

2.20.3 Injunctive Relief

A claim between the State and the Contractor is not subject to the provisions of Section 2.20.2, Informal Dispute Resolution, where a party makes a good faith determination that a breach of this Contract by the other party will result in damages so immediate, so large or severe, and so incapable of adequate redress that a temporary restraining order or other injunctive relief is the only adequate remedy.

2.20.4 Continued Performance

Each party will continue performing its obligations under this Contract while a claim is being resolved, except to the extent the claim precludes performance and without limiting either party's right to terminate this Contract as provided in Section 2.16, Termination by the State or Section 2.17, Termination by the Contractor. A claim involving payment does not preclude performance.

2.21 Disclosure Responsibilities

2.21.1 Disclosure of Litigation

(a) Within 30 days after receiving notice of any litigation, investigation, arbitration, or other proceeding (collectively, "Proceeding") that arises during the term of this Contract, the Contractor must disclose the following to the Contract Administrator:

(i) A criminal Proceeding involving the Contractor (or any Subcontractor) or any of its officers or directors;

(ii) A parole or probation Proceeding;

(iii) A Proceeding involving the Contractor (or any Subcontractor) or any of its officers or directors under the Sarbanes-Oxley Act; and

(iv) A civil Proceeding to which the Contractor (or, if the Contractor is aware, any Subcontractor) is a party, and which involves (A) a claim that might reasonably be expected to adversely affect the viability or financial stability of the Contractor or any Subcontractor; or (B) a claim or written allegation of fraud against the Contractor (or, if the Contractor is aware, any Subcontractor) by a governmental or public entity arising out of the Contractor's business dealings with governmental or public entities.

(b) Information provided to the State from the Contractor's publicly filed documents will satisfy the requirements of this Section.

(c) If any Proceeding that is disclosed to the State or of which the State otherwise becomes aware, during the term of this Contract, would cause a reasonable party to be concerned about: (i) the ability of the Contractor (or a Subcontractor) to continue to perform this Contract; or (ii) whether the Contractor (or a Subcontractor) is engaged in conduct that is similar in nature to the conduct alleged in the Proceeding and would constitute a breach of this Contract or a violation of federal or state law, regulations, or public policy, then the Contractor must provide the State all requested reasonable assurances that the Contractor and its Subcontractors will be able to continue to perform this Contract.

**2.21.2 Other Disclosures**

The Contractor must notify DTMB-Purchasing Operations within 30 days of:

- (a) becoming aware that a change in the Contractor's ownership or officers has occurred or is certain to occur; or
- (b) any changes to company affiliations.

2.21.3 Call Center Disclosure - Deleted, Not Applicable**2.22 Extended Purchasing****2.22.1 MiDEAL Requirements - Deleted, Not Applicable****2.22.2 State Administrative Fee - Deleted, Not Applicable****2.22.3 State Employee Purchase Requirements - Deleted, Not Applicable****2.23 Laws****2.23.1 Governing Law**

This Contract is governed by, and construed according to, the substantive laws of the State of Michigan without regard to any Michigan choice of law rules that would apply the substantive law of another jurisdiction to the extent not inconsistent with or preempted by federal law.

2.23.2 Compliance with Laws

The Contractor must comply with all applicable federal, state, and local laws and ordinances in providing the Deliverable(s).

2.23.3 Jurisdiction

Any dispute arising from this Contract must be resolved in the State of Michigan. With respect to any claim between the parties, the Contractor consents to venue in Ingham County, Michigan, and irrevocably waives any objections to this venue that it may have, such as lack of personal jurisdiction or forum non conveniens. The Contractor must appoint agents in the State of Michigan to receive service of process.

2.23.4 Nondiscrimination

In the performance of the Contract, the Contractor agrees not to discriminate against any employee or applicant for employment, with respect to his or her hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, color, religion, national origin, ancestry, age, sex, height, weight, marital status, or physical or mental disability. The Contractor further agrees that every subcontract entered into for the performance of this Contract will contain a provision requiring non-discrimination in employment, as specified here, binding upon each Subcontractor. This covenant is required under the Elliott-Larsen Civil Rights Act, 1976 PA 453, MCL 37.2101, *et seq.*, and the Persons with Disabilities Civil Rights Act, 1976 PA 220, MCL 37.1101, *et seq.*, and any breach of this provision may be regarded as a material breach of the Contract.

2.23.5 Unfair Labor Practices

Under 1980 PA 278, MCL 423.321, *et seq.*, the State must not award a Contract or subcontract to an employer whose name appears in the current register of employers failing to correct an unfair labor practice compiled under MCL 423.322. This information is compiled by the United States National Labor Relations Board. A Contractor of the State, in relation to the Contract, must not enter into a contract with a Subcontractor, manufacturer, or supplier whose name appears in this register. Under MCL 423.324, the State may void any Contract if, after award of the Contract, the name of the Contractor as an employer or the name of the Subcontractor, manufacturer or supplier of the Contractor appears in the register.



2.23.6 Environmental Provision

For the purposes of this section, "Hazardous Materials" include asbestos, ACBMs, PCBs, petroleum products, construction materials including paint thinners, solvents, gasoline, oil, and any other material the manufacture, use, treatment, storage, transportation or disposal of which is regulated by the federal, state, or local laws governing the protection of the public health, natural resources, or the environment:

(a) The Contractor must use, handle, store, dispose of, process, transport, and transfer any Hazardous Material according to all federal, State, and local laws. The State must immediately advise the Contractor of the presence of any known Hazardous Material at the work site. If the Contractor encounters material reasonably believed to be Hazardous Material that may present a substantial danger, the Contractor must: (i) immediately stop all affected work; (ii) notify the State in accordance with Section 2.3.6, Notices; (iii) notify any entities required by law; and (iv) take appropriate health and safety precautions.

(b) The State may issue a Stop Work Order if the material is a Hazardous Material that may present a substantial danger and the Hazardous Material was not brought to the site by the Contractor, or does not wholly or partially result from any violation by the Contractor of any laws covering the use, handling, storage, disposal of, processing, transport and transfer of Hazardous Materials. The State may remove the Hazardous Material, render it harmless, or terminate the affected work for the State's convenience.

(c) If the Hazardous Material was brought to the site by the Contractor, or wholly or partially results from any violation by the Contractor of any laws covering the use, handling, storage, disposal of, processing, transport and transfer of Hazardous Material, or from any other act or omission within the control of the Contractor, the Contractor must bear its proportionate share of the delay and costs involved in cleaning up the site and removing and rendering harmless the Hazardous Material according to applicable laws.

2.23.7 Freedom of Information

This Contract and all information submitted to the State by the Contractor is subject to the Michigan Freedom of Information Act (FOIA), 1976 PA 442, MCL 15.231, *et seq.*

2.23.8 Workplace Safety and Discriminatory Harassment - Deleted, Not Applicable

2.23.9 Prevailing Wage - Deleted, Not Applicable

2.23.10 Abusive Labor Practices

The Contractor may not furnish any Deliverable(s) that were produced fully or partially by forced labor, convict labor, forced or indentured child labor, or indentured servitude.

"Forced or indentured child labor" means all work or service (1) exacted from any person under the age of 18 under the menace of any penalty for its nonperformance and for which the worker does not offer himself voluntarily; or (2) performed by any person under the age of 18 under a contract the enforcement of which can be accomplished by process or penalties.

2.24 General Provisions

2.24.1 Bankruptcy and Insolvency

The State may, without prejudice to any other right or remedy, fully or partially terminate this Contract and, at its option, take possession of the work-in-progress and finish the work-in-progress by whatever method the State deems appropriate if:

- (a) the Contractor files for bankruptcy protection;
- (b) an involuntary petition is filed against the Contractor and not dismissed within 30 days;
- (c) the Contractor becomes insolvent or a receiver is appointed due to the Contractor's insolvency;
- (d) the Contractor makes a general assignment for the benefit of creditors; or
- (e) the Contractor or its affiliates are unable to provide reasonable assurances that the Contractor or its affiliates can provide the Deliverable(s) under this Contract.



Contractor will place appropriate notices or labels on the work-in-progress to indicate ownership by the State. To the extent reasonably possible, work-in-progress must be stored separately from other stock and marked conspicuously with labels indicating State ownership.

2.24.2 Media Releases

News releases (including promotional literature and commercial advertisements) pertaining to the RFP and this Contract or the project to which it relates will not be made without prior approval by the State, and only in accordance with the instructions from the State.

2.24.3 Contract Distribution

DTMB-Purchasing Operations retains the sole right of Contract distribution to all State agencies and local units of government unless other arrangements are authorized by DTMB-Purchasing Operations.

2.24.4 Permits

Contractor must obtain and pay any associated costs for all required governmental permits, licenses, and approvals for the delivery, installation, and performance of this Contract.

2.24.5 Website Incorporation

The State is not bound by any content on the Contractor's website unless incorporated directly into this Contract.

2.24.6 Future Bidding Preclusion - Deleted, Not Applicable

2.24.7 Antitrust Assignment

The Contractor assigns to the State any claim for overcharges resulting from state or federal antitrust violations to the extent that those violations concern materials or services supplied by third parties toward fulfillment of this Contract.

2.24.8 Disaster Recovery

Contractor and the State recognize that the State provides essential services in times of natural or man-made disasters. Therefore, except as mandated by federal disaster response requirements, Contractor personnel dedicated to providing Deliverable(s) under this Contract will provide the State with priority.

2.24.9 Legal Effect

The State is not liable for costs incurred by the Contractor or for payment(s) under this Contract until the Contractor is authorized to perform under Section 1.2.4, Ordering.

2.24.10 Entire Agreement

This Contract constitutes the entire agreement between the parties and supersedes all prior agreements, whether written or oral, with respect to the subject matter. All attachments referenced in this Contract are incorporated in their entirety and form part of this Contract.

2.24.11 Order of Precedence

Any inconsistency in the terms associated with this Contract will be resolved by giving precedence to the terms in the following descending order:

- (a) Mandatory sections (2.1.1, Contract Term, 2.24.9, Legal Effect, 2.2.2, Payment Deadlines, 2.14, Insurance, 2.15, Indemnification, 2.16, Termination, 2.23, Governing Law, 2.15.7, Limitation of Liability);
- (b) The most recent Statement of Work related to this Contract;
- (c) All sections from Article 2 - Terms and Conditions, not listed in subsection (a);
- (d) Any attachment or exhibit to the Contract documents;
- (e) Any Purchase Order, Direct Voucher, or Procurement Card Order issued under the Contract; and
- (f) Contractor Responses contained in any of the RFP documents.

**2.24.12 Headings**

The captions and section headings used in this Contract are for convenience only and may not be used to interpret the scope and intent of this Contract.

2.24.13 Form, Function and Utility - Deleted, Not Applicable**2.24.14 Reformation and Severability**

Each provision of this Contract is severable from all other provisions of this Contract. If any provision of this Contract is held unenforceable, then this Contract will be modified to reflect the parties' original intent. All remaining provisions of this Contract remain in full force and effect.

2.24.15 Approval

Unless otherwise provided in this Contract, approval(s) must be in writing and must not be unreasonably withheld or delayed.

2.24.16 No Waiver of Default

Failure by a party to insist upon strict adherence to any term of this Contract does not waive that party's right to later insist upon strict adherence to that term, or any other term, of the Contract.

2.24.17 Survival

The provisions of this Contract that impose continuing obligations, including warranties, indemnification, and confidentiality, will survive the expiration or termination of this Contract.



Attachment A, Product Listing

Line Item No.	Product Description	Estimated 3 Year Quantity	Unit of Measure
001	BTC-2125M: DUAL-QUAT CONCENTRATED GERMICIDE, MIXTURE OF 25% ALKYL DIMETHYL BENZYL AMMONIUM CHOLORIDE CAS #68391-01-5, 25% ALKYDIMTHYL (ETHYLBENZYL) AMMONIUM CHLORIDE CAS #68956-76-6. MUST BE CLEAR LIQUID. MUST BE 50% ACTIVE CATIONIC. PRODUCT MUST BE REGISTERED WITH EPA FOR USE IN DISINFECTANTS PRODUCED BY MICHIGAN STATE INDUSTRIES. DRUM 425 LBS, SPECIFIC GRAVITY (8.1 LB/GA) MUST BE BTC-2125M, PRODUCT NUMBER (3302), PRODUCT OF STEPHAN CHEMICAL COMPANY, NORTHFIELD, IL. NO SUBSTITUTIONS.	300,000	lb.
002	PHOSPHORIC ACID 75%: AKA; ORTHOPHOSPHORIC ACID OR WHITE PHOSPHORIC ACID (H3 PO4). CAS #7664-38-2. MUST BE 75% CONCENTRATED LIQUID, TECHNICAL GRADE. 700 LB RETURNABLE DRUMS. BRANDS: PCS, ASTARIS, RHODIA, QUADRA. NO SUBSTITUTIONS.	315,000	lb.
003	ALKOXYLATED LINEAR ALCOHOL 100%, AKA; COLWET NF-34, SURFONIC LF 17, POLYTERGENT S405LF, PLURAFAC S-405LF. NON-IONIC SURFACTANT. FOR USE IN CLEANING PRODUCTS. CAS #68987-81-5. 450 LB DRUM BRAND: COLEMAN OR APPROVED ALTERNATE. NO SUBSTITUTIONS.	72,000	lb.
004	TERGITOL NP-10: NONIONIC SURFACTANT, CHEMICAL NAME: NONYLPHENOL POLYETHYLENE GLYCOL ETHER. COMPONENTS: >97% CAS #127087-87-0, <3% CAS #25322-68-3, <2% CAS #9014-93-1. PALE YELLOW COLORED SURFACTANT. 100% CONCENTRATED LIQUID. 470 LB RETURNABLE DRUM. PRODUCT: CARDIBE UNION OR DOW CHEMICAL COMPANY OR APPROVED ALTERNATE. NO SUBSTITUTIONS.	255,000	lb.
005	KASIL 6: POTASSIUM SILICATE SOLUTION. MUST BE DETERGENT GRADE. MUST BE COLORLESS, ODORLESS, VISCOUS LIQUID. 39.2% SOLIDS CONTENT BY WEIGHT. SPECIFIC GRAVITY; (1.39), CAS #1312-76-1. 630 LB DRUM. BRAND: PQ CORP. NO SUBSTITUTIONS.	400,000	lb.
006	SODIUM DICHLOROISOCYANURATE DIHYDRATE: AKA; SODIUM-DICHLOR-S-TRIAZINETRIONE. MEDIUM GRANULAR. AVAILABLE CHLORINE; 55.0-57.0 (% BY WEIGHT). MUST BE CAS #51580-86-0 AT 99%. 300 LB DRUM. BRAND: CDB 56 PRODUCT: CLEARON CORP NO SUBSTITUTIONS.	40,000	lb.
007	SODIUM HYPOCHLORITE: (NA O CL5 HOH), MUST BE 16% CONCENTRATED LIQUID CAS #7681-52-9 55 GALLON DRUM. NO SUBSTITUTIONS.	160,000	Gallon
008	SODIUM XYLENE SULFONATE 40%: AKA; STEPANATE X & WITCONATE SXS, NAXONATE 4LS. 40% MINIMUM. HYDROTROPIC SOLVENT. CAS #1300-72-7. SPECIFIC GRAVITY (1.168), 500 LB DRUM, BRAND: WITCO, YOUNG. NO SUBSTITUTIONS.	300,000	lb.



009	LINEAR DODECYLBENZENE SULFONATE, SODIUM SALT: AKA; RHODATERGE AM-1007 A PRODUCT OF RHODIA INC. NO SUBSTITUTIONS ACCEPTABLE. CAS #25155-30-0 >44%. AMBER GEL LIKE LIQUID. BLEND OF SURFACTANTS FOR USE IN CLEANING PRODUCTS FORMULATIONS. 450 LB DRUM NO SUBSTITUTIONS.	185,000	lb.
010	D'LIMONENE TECHNICAL GRADE 93 - 95%: CITRUS STRIPPER OIL, TERPENE HYDROCARBON, CAS #5989-27-5. COLOR: YELLOW CAST WITH A STRONG CITRUS ODOR. 381 LB DRUM. NO SUBSTITUTIONS.	90,000	lb.
011	AMIDEX CO-1: MODIFIED FATTY DIETHANOLAMIDE, SYNONYM; ALKANOLAMIDE , 400 LB DRUM, PRODUCT OF CHEMRON CORP. NO SUBSTITUTIONS	266,000	lb.

The Contractor must provide a Material Safety Data Sheet (MSDS), a Certificate of Analysis and a Specification sheet for each chemical when delivered.



Attachment B – MSDS Sheets

MATERIAL SAFETY DATA SHEET



1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Trade Name **BTC 2125M**
 Manufacturer **Stepan Company** *10076*
 22 West Frontage Road
 Northfield, IL 60093 USA

Telephone Numbers - 24 Hour Emergency Assistance
 Medical 800-228-5635
 Chemtrec 800-424-9300
 Chemtrec Int'l 703-527-3887

Telephone Numbers - General Assistance
 General (847) 446-7500

Product Class Quaternary
 Product Number 3302

DISTRIBUTED BY
PVS NOLWOOD CHEMICALS, INC
 10900 Harper Avenue
 Detroit, MI 48213
 (313) 925-0300

**CONTROLLED DOCUMENT
 IF STAMPED IN RED**

2 COMPOSITION / INFORMATION ON INGREDIENTS

0097

Ingredient Name	CAS Number	Percent
Water	7732-18-5	< 47 %
Alkyl dimethyl benzyl ammonium chloride (C12-18)	68391-01-5	25 %
Alkyl dimethyl ethylbenzyl ammonium chloride (C12-18)	68956-79-6	25 %
Ethanol	64-17-5	3 %

3 HAZARDS IDENTIFICATION

Emergency Overview

Clear liquid,
 Danger! Corrosive Combustible
 May be corrosive to the skin and eyes. Harmful or fatal if swallowed.

Health Effects: Eyes

This product may be corrosive to eyes.

Health Effects: Skin

This product may be corrosive to the skin. This product may be harmful if it is absorbed through the skin.

Health Effects: Inhalation

This product may cause irritation to the respiratory system. Excessive inhalation of this material causes headache, dizziness, nausea and loss of motor skills.

Health Effects: Ingestion

This product may be harmful or fatal if swallowed.

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1 FIRST AID MEASURES

Eyes

Immediately flush eyes with water for at least 15 minutes while holding eyelids open. Get medical attention or advice.

Skin

For skin contact flush with large amounts of water. Get medical attention or advice. Immediately take off all contaminated clothing. Wash contaminated clothing before reuse.

Inhalation

If symptoms are experienced, remove source of contamination or move victim to fresh air. If symptoms persist, get medical attention. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Seek medical attention.

Ingestion

If the material is swallowed, get immediate medical attention or advice. Do not induce vomiting.

Notes to Physician

If the product is ingested, probable mucosal damage may contraindicate the use of gastric lavage. Treat the affected person appropriately.

2 FIRE FIGHTING MEASURES

Flash Point (50.6 °C), 123 F PMCC

OSHA Flammability Classification Combustible IIIA

Fire and Explosion Hazards

Slight fire hazard.

Extinguishing Media

Dry chemical, foam, carbon dioxide, water fog. Use water to cool fire-exposed containers and to protect personnel.

Fire Fighting Equipment / Instructions

Firefighters should wear full fire-fighting turn-out gear (full Bunker gear) including NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

3 ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK PROCEDURES

Emergency Action:

Isolate spill or leak area immediately. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering.

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Use clean non-sparking tools to collect absorbed material. Large Spills: Dike ahead of liquid spill for later disposal.

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

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Surfaces may become slippery after spillage.

7 HANDLING & STORAGE

Handling Procedures

Avoid contact with skin and eyes. Avoid breathing vapors or mists of this product. Keep this product from heat, sparks, or open flame. Wash thoroughly after work using soap and water. Wash hands before eating, drinking, smoking, or using toilet facilities. As with all chemicals, good industrial hygiene practices should be followed when handling this material.

Storage Procedures

DO NOT CONTAMINATE WATER, FOOD OR FEED BY STORAGE OR DISPOSAL. Keep this material in a cool, well-ventilated place. Do not handle or store near an open flame, heat or other sources of ignition.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Personal Protective Equipment: Eyes/Face

Wear chemical goggles; face shield (if splashing is possible).

Personal Protective Equipment: Skin

Work clothing sufficient to prevent all skin contact should be worn, such as coveralls and long sleeves. Use impervious gloves.

Personal Protective Equipment: Respiratory

If irritation is experienced, a NIOSH-approved respirator should be worn. Ventilation and other forms of engineering controls are often the preferred means for controlling chemical exposures. Respiratory protection may be needed for non-routine or emergency situations.

Personal Protective Equipment: General

Eye wash fountain and emergency showers are recommended.

Exposure Guidelines

Listed below.

_ Ethanol	64-17-5	
ACGIH - Occupational Exposure Limits - TWAs		1000 ppm TWA
Mexico - Occupational Exposure Limits - TWAs		1000 ppm TWA; 1900 mg/m3 TWA
NIOSH - Health Standards - Exposure Limits		1000 ppm TWA; 1900 mg/m3 TWA
NIOSH - Health Standards - Health Effects and Precautions		Eye, respiratory, and skin irritation; teratogenic and reproductive effects
NIOSH - Pocket Guide - IDLHs (Immediately Dangerous to Life or Health)		3300 ppm IDLH
NIOSH - Pocket Guide - Target Organs		respiratory system, skin, eyes, CNS, liver, blood, reproductive system
NIOSH - Pocket Guide - TWAs		1000 ppm TWA; 1900 mg/m3 TWA
OSHA - Final PELs - Time Weighted Averages (TWAs)		1000 ppm TWA; 1900 mg/m3 TWA

9 PHYSICAL & CHEMICAL PROPERTIES

Flash Point	(50.6 °C), 123 F PMCC
Specific Gravity	(0.974 g/ml), 8.1 lb/gal

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Percent Volatile 50 % (w/w, includes water)
Vapor Pressure Not Determined or Unknown
Vapor Density Estimated heavier than air.
Viscosity 50 cps @ 25 C
Evaporation Rate Estimated slower than ethyl ether.
RVOC 3 % (Ethanol)
Pour Point 25 F
pH Value 6.7 @10% Aqueous Solution

Appearance and Odor
 Clear liquid,

0 STABILITY & REACTIVITY

Chemical Stability
 Stable under normal conditions.

Conditions to Avoid
 Keep away from heat, sparks, or open flame.

Incompatibility
 This product may react with strong oxidizing agents, anionic compounds,

Hazardous Decomposition
 Upon decomposition, this product may yield oxides of nitrogen and ammonia. Carbon monoxides and carbon dioxide.

Hazardous Polymerization
 Will not occur.

1 TOXICOLOGICAL INFORMATION

Carcinogenicity
 Not listed as carcinogenic according to IARC, NTP or OSHA.

Other Toxicological Information
 Information available upon request. Please contact Stepan Technical Service Department.

LD50 Value
 Oral LD50 (rat) = >50 - 500 mg/kg

_Ethanol **64-17-5**

ACGIH - Occupational Exposure Limits - Carcinogens	A4 - Not Classifiable as a Human Carcinogen
Mexico - Occupational Exposure Limits - Carcinogens	A4 - Not classifiable as a human carcinogen
NIOSH - Selected LD50s and LC50s	Inhalation LC50 Rat: 20000 mg/kg/10H; Inhalation LC50 Mouse: 39 g/m ³ /4H; Oral LD50 Rat: 7060 mg/kg; Oral LD50 Mouse: 3450 mg/kg

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12 ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to fish.
Information available upon request. Please contact Stepan Technical Service Department.

Environmental Fate

This product is biodegradable.

13 DISPOSAL CONSIDERATIONS

Disposal Instructions

PESTICIDE DISPOSAL - Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL - Do not reuse empty container. Triple rinse empty container with water. Return metal drum then offer for reconditioning or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers may be disposed of in a sanitary landfill, incinerated, or if allowed by local authorities, by burning. If burned, stay out of smoke. Offer for recycling if available.

14 TRANSPORT INFORMATION

DOT Proper Shipping Name Refer to bill of lading or container label for DOT or other transportation hazard classification, if any.

15 REGULATORY INFORMATION

Ingredient Name	CAS Number	Percent
Water	7732-18-5	< 47 %
Alkyl dimethyl benzyl ammonium chloride (C12-18)	68391-01-5	25 %
Alkyl dimethyl ethylbenzyl ammonium chloride (C12-18)	68956-79-6	25 %
Ethanol	64-17-5	3 %
California - Proposition 65 - Developmental Toxicity	developmental toxicity, initial date 10/1/87 (when in alcoholic beverages)	

Inventories

All components of this product are listed on the following inventories: U.S.A. (TSCA), Canada (DSL), Europe (EINECS/ELINCS/Polymer/NLP), Australia (AICS), Korea (ECL), Japan (ENCS), China (EICS), Philippines (PICCS)

There is no calculable reportable quantity (RQ) for this product.

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6 OTHER INFORMATION

Disclaimer

Disclaimer: Nothing contained herein grants or extends a license, express or implied, in connection with patents, issued or pending, of the manufacturer or others. The information contained herein is based on the manufacturer's own study and the works of others. The manufacturer makes no warranties, expressed or implied, as to the accuracy, completeness, or adequacy of the information contained herein. The manufacturer shall not be held liable (regardless of fault) to the vendee's employees, or anyone for any direct, special or consequential damages arising out of or in connection with the accuracy, completeness, adequacy or furnishing of such information.

HAZARD RATINGS	HMIS	NFPA
Health	3	3
Flammability	2	2
Reactivity	0	0
PPE	X	

Completed On 8/8/2005 Replaces Sheet Dated 07/15/2005
 Completed By Product Safety & Compliance

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 Product Name BTC 2125M Version 23



INNOPHOS

PHOSPHORIC ACID 75%, 80% & 85%

Material Safety Data Sheet Date Prepared: 4/20/06 Supersedes Date: 1/16/06

1. PRODUCT AND COMPANY DESCRIPTION

Innophos
 PO Box 8000
 259 Prospect Plains Road
 Cranbury NJ 08512-8000

DISTRIBUTED BY
 PVS NOLWOOD CHEMICALS, INC
 10900 Harper Avenue
 Detroit, MI 48213
 (313) 925-0300

Emergency Phone Numbers:
 FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT
 CONTACT: CHEMTREC (800-424-9300 within the United States or
 703-527-3887 for international collect calls) or INNOPHOS ECT
 (Emergency Communication Team) at 615-386-7816.

For Product Information:
 (609) 495-2495

Chemical Name or Synonym:
 ORTHOPHOSPHORIC ACID; WHITE PHOSPHORIC ACID

Molecular Formula:
 H_3PO_4

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Reg Number	OSHA Hazard	Percentage
PHOSPHORIC ACID	7664-38-2	Y	75 - 85
WATER	7732-18-5	N	BALANCE

3. HAZARDS IDENTIFICATION

A. EMERGENCY OVERVIEW:

Physical Appearance and Odor:
 colorless / liquid, odorless.

Warning Statements:
 DANGER! CAUSES BURNS.

CONTROLLED DOCUMENT
 IF STAMPED IN RED

0486

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Continued on Next Page



INNOPHOS

PHOSPHORIC ACID 75%, 80% & 85%

Material Safety Data Sheet

Date Prepared:

4/20/06 Supersedes Date: 1/16/06

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3. HAZARDS IDENTIFICATION (Continued)

B. POTENTIAL HEALTH EFFECTS:

Acute Eye:

Corrosive. Causes tissue destruction, permanent damage to the cornea, blindness.

Acute Skin:

Causes irritation, burns.

Acute Inhalation:

Mists may cause lung irritation, shortness of breath, fluid in lungs.

Acute Ingestion:

Can cause nausea, vomiting, diarrhea, corrosion, burns to mouth and esophagus, abdominal pain, chest pain, shortness of breath, seizures, death.

Chronic Effects:

This product does not contain any ingredient designated by IARC, NTP, ACGIH or OSHA as probable or suspected human carcinogens.

4. FIRST AID MEASURES

FIRST AID MEASURES FOR ACCIDENTAL:

Eye Exposure:

Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek immediate medical attention, preferably with an ophthalmologist. If the physician is not immediately available, eye irrigation should be continued for an additional 15 minutes. If it is necessary to transport the patient to a physician and the eye needs to be bandaged, use a dry sterile cloth pad and cover both eyes.

Skin Exposure:

Immediately wipe excess material off skin with a dry cloth; then wash skin with plenty of soap and water for at least 15 minutes. Seek medical attention. Remove contaminated clothing and shoes while washing. Clean contaminated clothing and shoes before re-use or discard if they cannot be thoroughly cleaned.

Inhalation:

Remove victim from immediate source of exposure and assure that the

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Continued on Next Page



INNOPHOS

PHOSPHORIC ACID 75%, 80% & 85%

Material Safety Data Sheet

Date Prepared:

4/20/06 Supersedes Date: 1/16/06

4. FIRST AID MEASURES (Continued)

victim is breathing. If breathing is difficult, administer oxygen, if available. If victim is not breathing, administer CPR (cardio-pulmonary resuscitation). Seek immediate medical attention.

Ingestion:

If victim is conscious and alert, give 2-3 glasses of water to drink and do not induce vomiting. Seek immediate medical attention. Do not leave victim unattended. To prevent aspiration of swallowed product, lay victim on side with head lower than waist. Vomiting may occur spontaneously. If vomiting occurs and the victim is conscious, give water to further dilute the chemical.

MEDICAL CONDITIONS POSSIBLY AGGRAVATED BY EXPOSURE:

Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

NOTES TO PHYSICIAN:

All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

This material is an acid. The primary toxicity of this product is due to its irritant effects on mucous membranes.

INHALATION: If cough or shortness of breath occurs, evaluate the possibility of bronchitis or pneumonitis. Chest x-ray and arterial blood gases can be used to determine the presence of pulmonary edema. In severe cases, use of humidified oxygen and assisted ventilation including positive end expiratory pressure (PEEP) may be needed. Parenteral steroids may be useful in limiting the extent of pulmonary damage.

SKIN: Wash exposed area thoroughly with soap and water. Chemical burns from strong acids are generally treated the same as thermal burns.

EYES: Irrigate eyes for 15 minutes with sterile saline. If irritation, pain, swelling, photophobia or lacrimation persist, examination by an ophthalmologist is recommended.

INGESTION: If not already performed by first aid personnel, irrigate mouth with large amounts of water and dilute the acid by having victim drink 4 to 8 ounces of water or milk. DO NOT induce vomiting. Use of

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INNOPHOS

PHOSPHORIC ACID 75%, 80% & 85%

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4. FIRST AID MEASURES (Continued)

gastric lavage is controversial. The advantage of removal of acid must be weighted against the risk of perforation or bleeding. If a large amount of acid (> 1 ml/kg body weight) has been recently ingested, cautious gastric lavage is generally advised if the patient is alert and there is little risk of convulsions. Consultation with a gastroenterologist and/or surgeon is advised. Serious complications such as perforation or stricture of the esophagus may occur requiring care by specialists. Laryngeal edema may develop requiring intubation or tracheostomy.

5. FIRE FIGHTING MEASURES

FIRE HAZARD DATA:

Flash Point:

Not Applicable

Extinguishing Media:

Not combustible. Use extinguishing method suitable for surrounding fire.

Special Fire Fighting Procedures:

Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing. Keep unnecessary people away, isolate hazard area and deny entry. Evacuate residents who are downwind of fire. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later. Persons who may have been exposed to contaminated smoke should be immediately examined by a physician and checked for symptoms of poisoning. The symptoms should not be mistaken for heat exhaustion or smoke inhalation.

Unusual Fire and Explosion Hazards:

Not combustible.

Hazardous Decomposition Materials (Under Fire Conditions):

oxides of phosphorus

6. ACCIDENTAL RELEASE MEASURES

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6. ACCIDENTAL RELEASE MEASURES (Continued)

Evacuation Procedures and Safety:

Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Containment of Spill:

Dike or retain dilution water or water from firefighting for later disposal. Follow procedure described below under Cleanup and Disposal of Spill.

Cleanup and Disposal of Spill:

Exercise caution during neutralization as considerable heat may be generated. Carefully neutralize spill with soda ash. Clean up residual material by washing area with water.

Environmental and Regulatory Reporting:

Runoff from fire control or dilution water may cause pollution. Large spills should be handled according to a predetermined plan. For assistance in developing a plan contact the Technical Service Department using the Product Information phone number in Section 1.

7. HANDLING AND STORAGE

Minimum/Maximum Storage Temperatures:

Not Available

Handling:

Do not get on skin or in eyes. Avoid breathing vapors and mists. Do not ingest. This product reacts violently with bases liberating heat and causing spattering.

Storage:

Store in an area that is cool, dry, well-ventilated.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Introductory Remarks:

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION (Continued)

These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. While developing safe handling procedures, do not overlook the need to clean equipment and piping systems for maintenance and repairs. Waste resulting from these procedures should be handled in accordance with Section 13: Disposal Considerations.

Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

Exposure Guidelines:

Exposure limits represent regulated or recommended worker breathing zone concentrations measured by validated sampling and analytical methods, meeting the regulatory requirements. The following limits apply to this material, where, if indicated, S=skin and C=ceiling limit:

PHOSPHORIC ACID

	Notes	TWA	STEL
ACGIH		1 mg/cu m	3 mg/cu m
OSHA		1 mg/cu m	3 mg/cu m

Engineering Controls:

Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures: local exhaust ventilation at the point of generation.

Respiratory Protection:

When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations.

Eye/Face Protection:

Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material.

Eye contact should be prevented through use of chemical safety glasses

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION (Continued)

with side shields or splash proof goggles. An emergency eye wash must be readily accessible to the work area. Face contact should be prevented through use of a face shield.

Skin Protection:

Skin contact should be prevented through use of suitable protective clothing, gloves and footwear, selected with regard for use conditions and exposure potential. Consideration must be given both to durability as well as permeation resistance.

Work Practice Controls:

Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material:

- (1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
- (2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
- (3) Wash exposed skin promptly to remove accidental splashes or contact with this material.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product Information phone number in Section 1 for its exact specifications.

Physical Appearance:

colorless / liquid.

Odor:

odorless.

pH:

< 1 at 1 wt/wt%.

Specific Gravity:

> 1.573 at 25 C (77 F).

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9. PHYSICAL AND CHEMICAL PROPERTIES (Continued)

Density:

1.573 to 1.693 g/mL at 25 C (77 F).

Water Solubility:

miscible

Melting Point Range:

Not Available

Freezing Point Range:

-17 to 21 C (1 to 70 F)

Boiling Point Range:

135 to 158 C (275 to 316 F) at 760 mmHg

Vapor Pressure:

5.65 to 2.16 mmHg at 20 C (68 F)

Vapor Density:

Not Available

10. STABILITY AND REACTIVITY

Chemical Stability:

This material is stable under normal handling and storage conditions described in Section 7.

Conditions To Be Avoided:

none known

Materials/Chemicals To Be Avoided:

fluorine
strong oxidizing agents
strong reducing agents
bases
metals
sulfur trioxide
phosphorus pentoxide

The Following Hazardous Decomposition Products Might Be Expected:

Decomposition Type: thermal

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10. STABILITY AND REACTIVITY (Continued)

oxides of phosphorus

Hazardous Polymerization Will Not Occur.

Avoid The Following To Inhibit Hazardous Polymerization:
not applicable

11. TOXICOLOGICAL INFORMATION

Acute Eye Irritation:

Toxicological Information and Interpretation

eye - eye irritation, 119 mg, rabbit.
Severely irritating.
eye - eye irritation, rabbit.
Corrosive.

Acute Skin Irritation:

Toxicological Information and Interpretation

skin - skin irritation, 595 mg/24 hr, rabbit.
Severely irritating.
skin - skin irritation, rabbit.
Corrosive. (At 24 hours.).

Acute Dermal Toxicity:

Toxicological Information and Interpretation

LD50 - lethal dose 50% of test species, 2740 mg/kg, rabbit.

Acute Respiratory Irritation:

No test data found for product.

Acute Inhalation Toxicity:

No test data found for product.

Acute Oral Toxicity:

Toxicological Information and Interpretation

LD50 - lethal dose 50% of test species, 1530 mg/kg, rat.

Chronic Toxicity:

This product does not contain any substances that are considered by OSHA, NTP, IARC or ACGIH to be "probable" or "suspected" human carcinogens.

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11. TOXICOLOGICAL INFORMATION (Continued)

No additional test data found for product.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ecotoxicological Information and Interpretation:

LC50 - lethal concentration 50% of test species, 138 mg/l/96 hr, fish:

Mosquitofish.

Practically nontoxic.

Chemical Fate Information:

No specific biodegradation test data located. While acidity of this material is readily reduced in natural waters, the resulting phosphate may persist indefinitely or incorporate into biological systems.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Please contact technical service support at the phone number in section one of this MSDS to obtain suggestions for proper disposal of this product.

Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

EPA Hazardous Waste - YES

EPA RCRA HAZARDOUS WASTE CODES:

"C" Corrosive.

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14. TRANSPORTATION INFORMATION

Transportation Status: **IMPORTANT!** Statements below provide additional data on listed DOT classification.

The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

US Department of Transportation
Hazard Class..... 8

Shipping Name:
PHOSPHORIC ACID SOLUTION
ID Number..... UN1805
Packing Group..... III
Labels..... CORROSIVE
Emergency Guide #..... 154

15. REGULATORY INFORMATION

Inventory Status	Status
Inventory	
UNITED STATES (TSCA)	Y
CANADA (DSL)	Y
EUROPE (EINECS/ELINCS)	Y
AUSTRALIA (AICS)	Y
JAPAN (MITI)	Y
SOUTH KOREA (KECL)	Y

Y = All ingredients are on the inventory.
 E = All ingredients are on the inventory or exempt from listing.
 P = One or more ingredients fall under the polymer exemption or are on the no longer polymer list. All other ingredients are on the inventory or exempt from listing.
 N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing.

FEDERAL REGULATIONS

Inventory Issues:
 All functional components of this product are listed on the TSCA Inventory.

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15. REGULATORY INFORMATION (Continued)

SARA Title III Hazard Classes:

- Fire Hazard - NO
- Reactive Hazard - NO
- Release of Pressure - NO
- Acute Health Hazard - YES
- Chronic Health Hazard - NO

SARA Extremely Hazardous Substances (EHS)/CERCLA Hazardous Substances

Ingredient	CERCLA/SARA RQ	SARA EHS TPQ
PHOSPHORIC ACID	5000 lbs	

OTHER FEDERAL REGULATIONS:

FDA Status:

This product meets the compositional requirements of:

21 CFR 182.1073 PHOSPHORIC ACID

STATE REGULATIONS:

This product does not contain any components that are regulated under California Proposition 65.

16. OTHER INFORMATION

National Fire Protection Association Hazard Ratings--NFPA(R):

- 3 Health Hazard Rating--Serious
- 0 Flammability Rating--Minimal
- 0 Instability Rating--Minimal

National Paint & Coating Hazardous Materials Identification System--HMIS(R):

- 3 Health Hazard Rating--Serious
- 0 Flammability Rating--Minimal
- 0 Reactivity Rating--Minimal

Reason for Revisions:

Change and/or addition made to NFPA Ratings in Section 16.

Key Legend Information:

- ACGIH - American Conference of Governmental Industrial Hygienists
- OSHA - Occupational Safety and Health Administration
- TLV - Threshold Limit Value
- PEL - Permissible Exposure Limit

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16. OTHER INFORMATION (Continued)

TWA - Time Weighted Average
 STEL - Short Term Exposure Limit
 NTP - National Toxicology Program
 IARC - International Agency for Research on Cancer
 ND - Not determined
 RPI - INNPHOS Established Exposure Limits

Disclaimer:
 The information herein is given in good faith but no warranty, expressed or implied, is made.

End of Page 13 End of MSDS Document



The Chemical Company

Safety Data Sheet

Plurafac® S 405 LF

Revision date : 2010/01/18
Version: 1.0

Page: 1/7
(30125759/SDS_GEN_US/EN)

1. Product and Company Identification

Company
BASF CORPORATION
100 Campus Drive
Florham Park, NJ 07932, USA

24 Hour Emergency Response Information
CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP

Synonyms: SURFACTANT

2. Hazards Identification

Emergency overview

WARNING:
Causes eye irritation.
MAY CAUSE RESPIRATORY TRACT IRRITATION.
MAY CAUSE SKIN IRRITATION.
INGESTION MAY CAUSE GASTRIC DISTURBANCES.
Use with local exhaust ventilation.
Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator.
Wear NIOSH-certified chemical goggles.
Wear protective clothing.
Wear chemical resistant protective gloves.
Eye wash fountains and safety showers must be easily accessible.

State of matter: liquid
Colour: colourless to yellow
Odour: of polyol

Potential health effects

Primary routes of exposure:
Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Medical conditions aggravated by overexposure:
Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product. See MSDS section 11 - Toxicological information.

3. Composition / Information on Ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
68987-81-5	100.0 %	Alcohols, C6-10, ethoxylated propoxylated



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4. First-Aid Measures

General advice:

Remove contaminated clothing.

If inhaled:

Remove the affected individual into fresh air and keep the person calm. Seek medical attention.

If on skin:

Wash thoroughly with soap and water.

If irritation develops, seek medical attention.

If in eyes:

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Rinse mouth and then drink plenty of water. Do not induce vomiting. Immediate medical attention required.

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Flash point: 224 - 227 °C (ASTM D92)

Suitable extinguishing media:

water, dry extinguishing media, foam

Hazards during fire-fighting:

harmful vapours
Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions:

Use personal protective clothing.

Environmental precautions:

Do not discharge into drains/surface waters/groundwater.

Cleanup:

Place absorbed material in the same container as the spilled substance/product for disposal.
For small amounts: Pick up with absorbent material (e.g. sand, sawdust, general-purpose binder). Dispose of absorbed material in accordance with regulations.
For large amounts: Pump off product.

Further information:

High risk of slipping due to leakage/spillage of product.



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7. Handling and Storage

Handling

General advice:

No special measures necessary provided product is used correctly.

Protection against fire and explosion:

Take precautionary measures against static discharges.

Storage

General advice:

Keep container tightly closed and dry; store in a cool place.

8. Exposure Controls and Personal Protection

Advice on system design:

Provide local exhaust ventilation to control vapours/mists.

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Breathing protection if breathable aerosols/dust are formed.

Hand protection:

Chemical resistant protective gloves

Consult with glove manufacturer for testing data.

Eye protection:

Tightly fitting safety goggles (chemical goggles) and face shield.

General safety and hygiene measures:

Wear protective clothing as necessary to minimize contact. Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin and eyes. Remove contaminated clothing.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	of polyol	
Colour:	colourless to yellow	
pH value:	5.5 - 7	
freezing range:	0 - 8 °C	(1,013 hPa)
Boiling point:	> 149 °C	
Vapour pressure:	< 0.35 mmHg	(20 °C)
Density:	0.99 - 1.04 g/cm ³	(25 °C)
Relative density:	0.99 - 1.04	(25 °C)
Partitioning coefficient n-octanol/water (log Pow):	3.01	(calculated)
Viscosity, dynamic:	80 mPa.s	(25 °C)
Solubility in water:		soluble
Molar mass:	1,300 g/mol	



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10. Stability and Reactivity

Conditions to avoid:

No conditions known that should be avoided.

Substances to avoid:

strong oxidizing agents

Hazardous reactions:

The product is chemically stable.

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products known.

Thermal decomposition:

400 - 425 °F

Corrosion to metals:

No corrosive effect on metal.

11. Toxicological information

Acute toxicity**Oral:**

Type of value: LD50

Species: rat

Value: approx. 2,380 - 2,745 mg/kg

The product has not been tested. The statement has been derived from products of a similar structure and composition.

Inhalation:

Type of value: LC50

Species: rat

Value: approx. > 50 mg/l

Exposure time: 4 h

The product has not been tested. The statement has been derived from products of a similar structure and composition.

Dermal:

Type of value: LD50

Species: rabbit

Value: > 2,000 mg/kg

The product has not been tested. The statement has been derived from products of a similar structure and composition.

Irritation / corrosion**Skin:**

Species: rabbit

Result: non-irritant

Method: Primary skin irritation test

Eye:

Species: rabbit

Result: moderately irritating

The product has not been tested. The statement has been derived from products of a similar structure and composition.

Genetic toxicity



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Experimental/calculated data:
Ames-test positive

HGPRT assay negative
No mutagenic effects reported.

Unscheduled DNA synthesis negative

12. Ecological Information

Fish

Acute:
Pimephales promelas/LC50 (96 h): 1 - 10 mg/l

Aquatic invertebrates

Acute:
EC50 (48 h): 1 - 10 mg/l

Aquatic plants

Toxicity to aquatic plants:
EC50 (120 h): 1 - 10 mg/l

Microorganisms

Toxicity to microorganisms:

Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low concentrations.

Degradability / Persistence

Biological / Abiological Degradation

Test method: OECD 301B; ISO 9439; 92/69/EEC, C.4-C
Method of analysis: CO₂ formation relative to the theoretical value
Degree of elimination: > 60 % (28 d)
Evaluation: Readily biodegradable.

Other adverse effects:

The product has not been tested. The statements on ecotoxicology have been derived from products of a similar structure and composition.

13. Disposal considerations

Waste disposal of substance:

Dispose of in accordance with national, state and local regulations. It is the waste generator's responsibility to determine if a particular waste is hazardous under RCRA.

Container disposal:

Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

RCRA: NA

14. Transport Information



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Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

OSHA hazard category: Skin and/or eye irritant;

EPCRA 311/312 (Hazard categories): Acute;

State regulations

CA Prop. 65:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

16. Other Information

NFPA Hazard codes:

Health : 2 Fire: 1 Reactivity: 0 Special:

HMIS III rating

Health: 2 Flammability: 1 Physical hazard: 0

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

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Local Contact Information

prod_reg@basf.com

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END OF DATA SHEET



THE DOW CHEMICAL COMPANY
MATERIAL SAFETY DATA SHEET



Product Name: TERGITOL(TM) NP-10 SURFACTANT
MSDS#: 1985

Effective Date: 02/12/2003
Page 1 of 16

Dow (hereinafter, and for purposes of this MSDS only, refers to The Dow Chemical Company and to Dow Chemical Canada Inc.) encourages and expects you to read and understand the entire MSDS, as there is important information throughout the document. Dow expects you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 IDENTIFICATION

Product Name TERGITOL(TM) NP-10 SURFACTANT

1.2 COMPANY IDENTIFICATION

The Dow Chemical Company
Midland, MI 48674

1.3 EMERGENCY TELEPHONE NUMBER

24-HOUR EMERGENCY TELEPHONE NUMBER: (989)636-4400.
Customer Information Number: 1-800-258-2436.

* or ® Indicates a Trademark of The Dow Chemical Company.



MATERIAL SAFETY DATA SHEET

Product Name: TERGITOL(TM) NP-10 SURFACTANT
MSDS#: 1985

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2. COMPOSITION INFORMATION

Component	CAS #	Amount (%W/W)
Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	> 97 %
Polyethylene glycol	25322-68-3	< 3%
Dinonylphenyl polyoxyethylene	9014-93-1	< 2%

3. HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Appearance	Murky
Physical State	Liquid
Odor	Mild
Hazards of product	DANGER! CAUSES EYE BURNS. CAUSES SKIN IRRITATION. ASPIRATION MAY CAUSE LUNG DAMAGE.

3.2 POTENTIAL HEALTH EFFECTS

Effects of Single Acute Overexposure

Inhalation Mist may cause irritation of the respiratory tract, experienced as nasal discomfort and discharge, with chest pain and coughing.



MATERIAL SAFETY DATA SHEET

Product Name: TERGITOL(TM) NP-10 SURFACTANT
MSDS#: 1985

Effective Date: 02/12/2003
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Eye Contact Causes severe irritation, experienced as discomfort or pain, excess blinking and tear production, marked excess redness and swelling of the conjunctiva, and chemical burns of the eye.

Skin Contact Brief contact is not irritating. Prolonged or repeated contact may cause discomfort and local redness.

Skin Absorption Prolonged or widespread contact may result in the absorption of potentially harmful amounts of material.

Swallowing May cause abdominal discomfort, nausea, vomiting and diarrhea. Aspiration into the lungs may occur during ingestion or vomiting, resulting in lung injury.

Chronic, Prolonged or Repeated Overexposure

Effects of Repeated Overexposure Repeated skin contact may cause a dermatitis.

Other Effects of Overexposure None currently known.

Medical Conditions Aggravated by Exposure

A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.

See Section 11 for toxicological information and additional information about potential health effects.

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

Toxic to aquatic organisms.

4. FIRST AID PROCEDURES

4.1 INHALATION

Remove to fresh air. Obtain medical attention if symptoms persist.

4.2 EYE CONTACT

Immediately flush eyes with water and continue washing for at least 15 minutes. DO NOT remove contact lenses, if worn. Obtain medical attention without delay, preferably from an ophthalmologist.

4.3 SKIN CONTACT

Remove contaminated clothing. Wash skin with soap and water. Obtain medical attention if irritation persists. Wash clothing before reuse.



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4.4 SWALLOWING

If patient is fully conscious, give two glasses of water. DO NOT INDUCE VOMITING. Obtain medical attention.

4.5 NOTES TO PHYSICIAN

There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

Any material aspirated during vomiting may cause lung injury. Therefore, emesis should not be induced mechanically or pharmacologically. If it is considered necessary to evacuate the stomach contents, this should be done by means least likely to cause aspiration (e.g., gastric lavage after endotracheal intubation).

5. FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES - REFER TO SECTION 9, PHYSICAL AND CHEMICAL PROPERTIES

5.2 EXTINGUISHING MEDIA

Extinguish fires with water spray or apply alcohol-type or all-purpose-type foam by manufacturer's recommended techniques for large fires. Use carbon dioxide or dry chemical media for small fires.

5.3 FIRE FIGHTING PROCEDURES

Do not direct a solid stream of water or foam into hot, burning pools; this may cause frothing and increase fire intensity.

5.4 SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Use self-contained breathing apparatus and protective clothing.

5.5 UNUSUAL FIRE AND EXPLOSION HAZARDS

Avoid accumulation of water. Product may be carried across water surface spreading fire or contacting an ignition source.

5.6 HAZARDOUS COMBUSTION PRODUCTS

Burning can produce the following products: Carbon monoxide and/or carbon dioxide. Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant.



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6. ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled:

Contain spills immediately with inert materials (e.g., sand, earth). Transfer liquids and solid diking material to suitable containers for recovery or disposal. To avoid gelling and foaming problems, do not use water to flush away spills.

Personal Precautions: Wear eye and skin protection. Floor may be slippery; use care to avoid falling. See Section 8.2 - Personal Protection.

Environmental Precautions: Avoid discharge to natural waters.

7. HANDLING AND STORAGE

7.1 HANDLING

General Handling

Do not get in eyes.
Avoid contact with skin and clothing.
Do not swallow.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

FOR INDUSTRY USE ONLY.

Ventilation

Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

Other Precautions

Surfactants can cause foaming problems in biological wastewater treatment plants and other high shear operations.

7.2 STORAGE

Store in accordance with good industrial practices. Storage information may be obtained from product-specific Storage and Handling Guides, or by calling Dow's Customer Information Group at 1-800-258-2436 (U.S.) or 1-800-331-6451 (Canada).

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION



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8.1 EXPOSURE LIMITS

Component	Exposure Limits	Skin Form
Polyethylene glycol	10 mg/m3 TWA8 AIHA WEEL	Aerosol

In the Exposure Limits Chart above, if there is no specific qualifier (i.e., Aerosol) listed in the Form Column for a particular limit, the listed limit includes all airborne forms of the substance that can be inhaled.

A "Yes" in the Skin Column indicates a potential significant contribution to overall exposure by the cutaneous (skin) route, including mucous membranes and the eyes, either by contact with vapors or by direct skin contact with the substance. A "Blank" in the Skin Column indicates that exposure by the cutaneous (skin) route is not a potential significant contributor to overall exposure.

8.2 PERSONAL PROTECTION

- Respiratory Protection:** Atmospheric levels should be maintained below the exposure guideline.
 When airborne exposure guidelines and/or comfort levels may be exceeded, use an approved air-purifying respirator.
 For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply.
- Ventilation:** Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.
- Eye Protection:** Monogoggles
- Protective Gloves:** Polyvinyl chloride coated
- Other Protective Equipment:** Eye Bath, Safety Shower

II

9. PHYSICAL AND CHEMICAL PROPERTIES

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Physical State: Liquid

Appearance: Murky

Odor: Mild

Flash Point - Closed Cup: 197 °C 387 °F *Pensky-Martens Closed Cup ASTM D 93*

Flash Point - Open Cup: 260 °C 500 °F *Cleveland Open Cup ASTM D 92*

Flammable Limits In Air:

Lower *Not determined.*
Upper *Not determined.*

Autoignition Temperature: *Not currently available.*

Vapor Pressure: < 0.01 mmHg 20 °C

Boiling Point (760 mmHg): > 250 °C > 482 °F *Decomposes*

Vapor Density (air = 1): > 1

Specific Gravity (H₂O = 1): 1.0622 20 °C / 20 °C

Freezing Point: 6.1 °C 43.0 °F

Melting Point: *Not applicable (for liquids)*

Solubility in Water (by weight): Completely soluble but some compositions may form gels

pH: *Not currently available.*

Molecular Weight: 682 g/mol (Average)

Evaporation Rate (Butyl Acetate = 1): < 0.01

10. STABILITY AND REACTIVITY

10.1 STABILITY/INSTABILITY Stable

Conditions to Avoid: Prolonged excessive heat may cause product decomposition.



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Incompatible Materials: Normally unreactive; however, avoid strong bases at high temperatures, strong acids, strong oxidizing agents and materials reactive with hydroxyl compounds.

10.2 HAZARDOUS POLYMERIZATION Will not occur.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Peroral

Rat; LD50 = 1.3 (1.0 - 1.7) g/kg

Major Signs: sluggishness, prostration

Gross Pathology: lungs, liver, kidneys discolored

Percutaneous

Rabbit; LD50 = 2 (1.4 - 3.0) ml/kg; 24 h occluded.

IRRITATION

Skin: Rabbit; uncovered

Results: no irritation

Eye: Rabbit; 0.5 ml; 5% dilution

Results: severe corneal injury

SIGNIFICANT DATA WITH POSSIBLE RELEVANCE TO HUMANS

In two-year feeding studies, the 4-mole ethoxylate of nonylphenol (NPE4) at doses of 200 mg/kg/day or 40 mg/kg/day in rats and dogs, respectively, produced no significant effects. The 9-mole ethoxylate (NPE9) at doses of 140 or 30 mg/kg/day in the diet of rats or dogs,



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respectively, produced no adverse effects. Parameters evaluated included body and organ weights and histopathology of 28 tissues. A dose of 1000 mg/kg/day of NPE9 resulted in reduced body weights and enlarged livers in rats and reduced weight, emesis, and minimal blood changes in dogs. A dose of 88 mg/kg/day NPE9 produced increased liver to body weight ratios in dogs which was attributed to decreased food consumption. Rats fed dietary concentrations of a related alkylphenol ethoxylate, the 40-mole ethoxylate of octylphenol (OPE40), up to 14000 ppm (700 mg/kg/day) for two years showed no adverse effects on growth or survival, feed consumption, hematologic values, urine measurements, organ weights or histopathologic lesions.

Alkylphenol Ethoxylate Toxicity: In studies with rabbits, sustained occluded skin contact of some undiluted surfactants caused inflammatory changes in the lung. Developmental effects including extra ribs and other skeletal variations were observed in the fetuses of rats treated with maternally toxic levels of a 9-mole ethoxylate of octylphenol, or a 4-mole or 9-mole ethoxylate of nonylphenol. The significance of these findings to humans is unclear as several human studies did not show any association of congenital effects in children and maternal exposure to spermicides containing octyl or nonylphenol ethoxylates. **Alkylphenol Toxicity:** Several studies with nonylphenol have resulted in slightly increased kidney weights in male rats continuously exposed to dietary concentrations of 200 ppm or greater (approximately >10 mg/kg/body weight/day). No histological lesions of the kidney were observed in one study but histopathological lesions, primarily tubule mineralization, were observed at 2000 ppm in one study and in a dose-related manner at concentrations ≥ 200 ppm in a third study. These results indicate that continuous exposure to high concentrations of nonylphenol may be toxic to the kidney. While nonylphenol has been shown to bind to the estrogen receptor and to have weak estrogen mimetic activity in several in vitro and in vivo screening assays, treatment of rats at dietary concentrations of nonylphenol up to 2000 ppm in their diet for 90 days did not result in alterations in estrous cycles, sperm measurements, or endocrine organ weights or histopathology. In addition, a three generation (F0 through F3 weaning) study conducted by the NIEHS indicated that nonylphenol did not affect reproductive parameters at dietary concentrations up to 2000 ppm in any generation. Effects in juvenile females consistent with those seen in screening assays (e.g., premature vaginal opening) were observed following high level exposure post-weaning (F1, F2, and F3) at 650 and 2000 ppm. Sperm counts were reduced at 650 and 2000 ppm in the F2 adults compared to controls from the same generation. These results and other inconsistent or potentially body weight related findings are considered of questionable significance. The No Observed Adverse Effect Level (NOAEL) for reproduction was 2000 ppm and for all effects was 200 ppm (except as noted for kidneys above). Considering the high doses (e.g., 100-350 mg/kg/day for females in the 2000 ppm group; the higher doses occurring post-weaning), the lack of permanent/prolonged effects is considered significant. Based on the results of these studies, exposure to low doses of nonylphenol, such as from workplace or environmental exposure, would not be expected to result in effects on mammalian reproduction. In a 2-generation reproduction study with octylphenol at dietary concentrations of 0.2 to 2000 ppm, treatment-related effects in adult F0, F1, and F2 animals were limited to reduced body weights and feed consumption at 2000 ppm. No effects on any reproductive parameters were observed in either generation. No effects on sperm measurements, estrous cyclicity, or reproductive organs were observed in adult animals. Pup body weights during lactation were reduced at 2000 ppm. The NOAEL for systemic and postnatal toxicity was 200 ppm (approximately 15 mg/kg/day) and for reproductive toxicity was >2000 ppm (approximately 150 mg/kg/day). Although octylphenol has weak estrogen mimetic



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activity in some screening assays, no estrogenic or reproductive effects occurred from dietary exposure to rats for two generations over a 10,000 fold dose range.

12. ECOLOGICAL INFORMATION

12.1 ENVIRONMENTAL FATE

BOD (% Oxygen consumption)

	Day 5	Day 10	Day 15	Day 20	Day 28/30
	11 %	26 %		45 %	

BOD (% Oxygen consumption)

	Day 5	Day 10	Day 15	Day 20	Day 28/30
	23 %	44 %		48 %	

12.2 ECOTOXICITY

Toxicity to Micro-organisms

Bacterial Inhibition; 16 h; IC50
Result value: > 1000 mg/l

Toxicity to Micro-organisms

Bacterial Inhibition; EC50
Result value: > 2000 mg/l

Toxicity to Aquatic Invertebrates

Daphnia; 48 h; LC50
Result value: 11.0 (8.7 - 14.1) mg/l

Toxicity to Aquatic Invertebrates

Daphnia; 48 h; LC50
Result value: 7.8 mg/l

Toxicity to Fish

Fathead Minnow; 96 h; LC50
Result value: 6.0 (5.0 - 7.3) mg/l



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12.3 FURTHER INFORMATION

Appropriate treatment of effluents will reduce levels of nonylphenol ethoxylate (NPE) residues to concentrations that should pose no harm to the environment, including protection for weak estrogen-mimetic activity observed for some degradation intermediates.

Theoretical Oxygen Demand (THOD) - measured: 2.30 mg/mg

Theoretical Oxygen Demand (THOD) - calculated:: 2.35 mg/mg

13. DISPOSAL CONSIDERATIONS

13.1 DISPOSAL

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. DOW HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION 2 (Composition/ Information on Ingredients). FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: incinerator or other thermal destruction device. waste water treatment system. As a service to its customers, Dow can provide names of information resources to help identify waste management companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums. Telephone Dow's Customer Information Group at 1-800-258-2436 or 1-989-832-1556 (U.S.), or 1-800-331-6451 (Canada) for further details .

14. TRANSPORT INFORMATION

14.1 U.S. D.O.T.

NON-BULK

Proper Shipping Name : NOT REGULATED

BULK

Proper Shipping Name : NOT REGULATED



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This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

15.1 FEDERAL/NATIONAL

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (CERCLA) SECTION 103

This product contains the following substances subject to CERCLA Section 103 reporting requirements and are listed in 40 CFR Part 302.4.

Component	CAS #	Amount
Glycol Ethers	Not available	<= 0.6000%
1,4-Dioxane	123-91-1	<= 0.0020%
Ethylene oxide	75-21-8	<= 0.0010%
Acetaldehyde	75-07-0	<= 0.0005%
Formaldehyde	50-00-0	<= 0.0005%

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT) SECTION 302

This product contains the following substances subject to SARA Section 302 reporting requirements and are listed in 40 CFR Part 302.4.

None.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT) SECTION 313

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act 1986 and 40 CFR Part 372.

Component	CAS #	Amount
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Glycol Ethers Not available <= 0.6000%

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT) SECTIONS 311 AND 312

Delayed (Chronic) Health Hazard : Yes
 Fire Hazard : No
 Immediate (Acute) Health Hazard : Yes
 Reactive Hazard : No
 Sudden Release of Pressure Hazard : No

TOXIC SUBSTANCES CONTROL ACT (TSCA)

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES (EINECS)

The components of this product are on the EINECS inventory or are exempt from EINECS inventory requirements.

CEPA - DOMESTIC SUBSTANCES LIST (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

15.2 STATE/LOCAL

PENNSYLVANIA (WORKER AND COMMUNITY RIGHT-TO-KNOW ACT)

The following product components are cited in the Pennsylvania Hazardous Substances List, the Pennsylvania Special Hazardous Substance List, and/or the Pennsylvania Environmental Hazardous Substance list, and are present at levels which require reporting.

Component	CAS #	Amount
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Glycol Ethers	Not available	<= 0.6000%
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MASSACHUSETTS (HAZARDOUS SUBSTANCES DISCLOSURE BY EMPLOYERS)

The following components of this product appear on the Massachusetts Substance List and are present at levels which could require identification in the MSDS:

Component	CAS #	Amount
1,4-Dioxane	123-91-1	<= 0.0020%
Ethylene oxide	75-21-8	<= 0.0010%
Acetaldehyde	75-07-0	<= 0.0005%
Formaldehyde	50-00-0	<= 0.0005%

CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986)

This product contains the following chemical(s) known to the State of California to cause cancer:

Component	CAS #	Amount
1,4-Dioxane	123-91-1	<= 0.0020%
Acetaldehyde	75-07-0	<= 0.0005%
Formaldehyde	50-00-0	<= 0.0005%

CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986)

This product contains the following chemical(s) known to the State of California to cause cancer and birth defects or other reproductive harm.

Component	CAS #	Amount
Ethylene oxide	75-21-8	<= 0.0010%

CALIFORNIA SCAQMD RULE 443.1 (SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 443.1, LABELING OF MATERIALS CONTAINING ORGANIC SOLVENTS)

VOC: Vapor pressure <0.01 mmHg at 20° C
|| 0 g/L

This section provides selected regulatory information on this product including its components. This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws relating to the product being used.



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16. OTHER INFORMATION

16.1 ADDITIONAL INFORMATION

ADDITIONAL INFORMATION: Additional product safety information on this product may be obtained by calling Dow's Customer Information Group at 1-800-258-2436 (U.S.) or 1-800-331-6451 (Canada).

16.2 HAZARD RATING SYSTEM

NFPA ratings for this product are: H - 2 F - 1 R - 0

These ratings are part of a specific hazard communication program and should be disregarded where individuals are not trained in the use of this hazard rating system. You should be familiar with the hazard communication programs applicable to your workplace.

16.3 RECOMMENDED USES AND RESTRICTIONS

NOTICE! NOT TO BE USED AS A BIOCIDES IN INTRAVAGINAL END-USE APPLICATIONS (INCLUDING SPERMICIDES). FOR INDUSTRY USE ONLY.

16.4 REVISION

Version: 6.0
 Revision: 02/12/2003
 Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

16.5 LEGEND

Bacterial/NA	Non Acclimated Bacteria
F	Fire
H	Health
IHG	Industrial Hygiene Guideline
N/A	Not available
NFPA	National Fire Protection Association
O	Oxidizer
R	Reactivity



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TS	Trade secret
VOL/VOL	Volume/Volume
W	Water Reactive
W/W	Weight/Weight

NOTICE: Dow urges each customer or recipient of this MSDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this MSDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given., Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that its activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of Dow, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product., Due to the proliferation of sources for information such as manufacturer-specific MSDSs, Dow is not and cannot be responsible for MSDSs obtained from any source other than Dow. If you have obtained a Dow MSDS from a non-Dow source or if you are not sure that a Dow MSDS is current, please contact Dow for the most current version.



MATERIAL SAFETY DATA SHEET

Product Name	CDB 56	
Product id	2007	
Revision date	21/11/2010	Revision: 6
Supersedes	23/06/2009	

1. Identification of the substance & the company

Chemical name	Sodium dichloroisocyanurate, dihydrate
Synonym(s)	Sodium dichlor; Sodium dichloroisocyanurate, dihydrate; Sodium dichloro-s-triazinetrione dihydrate; CDB Clearon; Troclosene sodium, dihydrate
Chemical formula	$\text{NaCl}_2(\text{NCO})_3 \cdot 2\text{H}_2\text{O}$
Chemical family	Chloroisocyanurate
Molecular weight	256
Type of product and use	For formulation into end-use products intended for disinfectants, sanitizers, fungicides, bactericides and algacides for pools, spas, hot tubs, industrial recirculating water cooling towers, air washers and evaporative condensers, sewage treatment, food contact surfaces, laundry and egg sanitizing
Company	Clearon Corp. 95 MacCorkle Ave., SW, South Charleston, WV 25303, USA Tel: (304) 746-3000
Emergency telephone number:	
- For Europe	(+31) 115 689000
- For UK and Ireland	(01865)407333
- For USA	Chemtrec (800) 424-9300
- For Asia - Pacific	ALERT-SGS 24 hr Toll Free Number : +800 ALERTSGS (+800-2537-8747) 24 hr Singapore Exchange Number : +65 6542-9595

2. Hazards identification

Adverse human health effects	Harmful if swallowed Irritant to eyes and respiratory system.
Environmental effects	Dangerous for the environment
NFPA Ratings (Scale 0-4)	Health = 2, Fire = 0, Reactivity = 1. Special Hazard Warning: OXIDIZER
GHS classification	



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Product Name **CDB 56**
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 Revision: 6



Signal word **Warning**

Hazard statements
 H302 - Harmful if swallowed
 H319 - Causes serious eye irritation
 H335- May cause respiratory irritation
 H410 - Very toxic to aquatic life with long lasting effects
 EUH031- Contact with acids liberates toxic gas

Precautionary statements
 P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 P304 + P340- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P301+ P330 - IF SWALLOWED, Rinse mouth.
 P310 - Immediately call a POISON CENTER or doctor/physician.

3. Composition / information on ingredients

Components	Weight %	Index No.	EC No.	EU Classification
SODIUM DICHOROISO CYANURATE, DIHYDRATE 51580-86-0	99-100	# 613-030-01-7	220-767-7	Acute Tox. 4 H302 Eye Irrit. 2 H319 STOT SE 3 H335 Aquatic Acute 1 H400 Aquatic Chronic 1 H410 EUH031 (In accordance with CLP 1272/2008) ----- R31 Xi; R36/37 Xn; R22 N; R50/53 (In accordance with DSD 67/548/EEC)
SODIUM CHLORIDE 7647-14-5	0-1		231-593-8	None



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4. First-aid measures

Eye contact	Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. Get medical attention immediately.
Skin contact	Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Wash clothing before re-use. Get medical attention immediately.
Inhalation	In case of dust inhalation or breathing fumes released from heated material, remove person to fresh air. Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.
Ingestion	If swallowed, wash mouth thoroughly with plenty of water and give water to drink. Get medical attention immediately. ***** NOTE: Never give an unconscious person anything to drink. *****
Notes to the physician	No specific antidote. Treat symptomatically and supportively. In case of ingestion DO NOT induce vomiting.
Medical conditions aggravated by exposure	Asthma, respiratory and cardiovascular disease.

5. Fire - fighting measures

Suitable extinguishing media	Water
Extinguishing media not to be used	Do not use dry chemical extinguisher containing ammonia compounds.
Fire fighting procedure	Cool containers with water spray. Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) in positive pressure mode. On small fires, use water spray or fog. On large fires, use heavy deluge or fog streams. Flooding amounts of water may be required before extinguishment can be accomplished.
Unusual fire and explosion hazards	When heated to decomposition, may release poisonous and corrosive fumes of nitrogen trichloride, chlorine and CO.



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6. Accidental release measures

Personal precautions For small spills in a well-ventilated areas, wear a NIOSH approved half-face or full face tight fitting respirator or a loose fitting powered air purifying respirator equipped with chlorine cartridges. Chemical goggles should be worn when using a half-face respirator. In addition to respiratory protection, wear coveralls, chemical resistant gloves, chemical resistant footwear; and chemical resistant headgear for overhead exposure.
 For clean-up of large spills, or small dry spills in confined areas, wear full-face respirator with chlorine cartridges or a positive pressure supplied air respirator. Additionally, body protection should be impervious clothing covering entire body to prevent personal contact with material.
 CAUTION - Protection concerns must also address the following: If this material becomes damp/wet or contaminated in a container, the formation of nitrogen trichloride gas may occur and an explosive condition may exist.

Methods for cleaning up Hazardous concentrations in air may be found in local spill area and immediately downwind. If spill material is still dry, do not put water directly on this product as a gas evolution may occur.

- **Soil** Do not contaminate spill material with any organic materials, ammonia, ammonium salts or urea.
Clean up all spill material with clean, dry dedicated equipment and place in a clean dry container.
- **Water** This material is heavier than and soluble in water. Stop flow of material into water as soon as possible. Begin monitoring for available chlorine and pH immediately.
- **In air** Vapors may be suppressed by the use of water fog.

7. Handling and storage

Handling Do not take internally.
 Avoid contact with skin, eyes, and clothing.
 Upon contact with skin or eyes, wash off with water.

Storage Store in a dry, cool, well-ventilated area. away from incompatible materials (see "materials to avoid").
 Do not store at temperatures above 60°C/140°F.
 Product has an indefinite shelf-life limitation.



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8. Exposure controls / personal protection

Exposure Limits :

Components	ACGIH-TLV Data	OSHA (PEL) Data
SODIUM DICHLOROISO CYANURATE, DIHYDRATE 51580-86-0	Not determined	Not determined
SODIUM CHLORIDE 7647-14-5	Not determined	Not determined

Ventilation requirements Use local exhaust ventilation to minimize dust and chlorine levels where industrial use occurs.
 Otherwise, ensure good general ventilation.

Personal protective equipment:

- **Respiratory protection** When dusty conditions are encountered, wear a NIOSH/OSHA full-face respirator with chlorine cartridges for protection against chlorine gas and dust/mist pre-filter.
- **Hand protection** Neoprene gloves
- **Eye protection** Use chemical safety glasses to avoid eye contact.
Where industrial use occurs, chemical goggles may be required.
- **Skin and body protection** Impervious body covering clothes, boots and neoprene apron

Hygiene measures Safety shower and eye bath should be provided. Do not eat, drink or smoke until after-work showering and changing clothes.



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Revision date	21/11/2010	Revision: 6
Supersedes	23/06/2009	

9. Physical and chemical properties

Appearance	White granules or tablet-form product
Odour	Mild chlorine-like
Boiling point/range	Not applicable
Melting point/range	Not applicable
Flash point	Not applicable
Auto-ignition temperature	Not self-ignitable
Vapour pressure	Not applicable under standard conditions
Evaporation rate (ether=1)	Not applicable under standard conditions
Vapor density	Not applicable under standard conditions
Viscosity	Not applicable
Solubility:	
- Solubility in water	24-25 mg/100ml
Density	Tap density = 0.974 g/mL pour density = 1.083 g/mL kg/L
pH	Not available
Decomposition temperature	Begins to lose 1 mole water at approximately 50°C; second mole water at 95°C; Decomposes at 240-250°C
Partition coefficient (n-octanol/water)	Log Pow - -0.0056 (estimated)
Explosive properties	Not available
Oxidising properties	Not oxidising
Particle size:	Non- inhalable

10. Stability and reactivity

Stability	Stable under normal conditions. Do not package in paper or cardboard. Begins to lose one mole of water at approximately 50°C
Materials to avoid	Organic materials, reducing agents, nitrogen containing materials, other oxidizers, acids, bases, oils, grease, sawdust, dry fire extinguishers containing monoammonium compounds.
Conditions to avoid	Heating above decomposition temperature
Hazardous decomposition products	Nitrogen trichloride, chlorine, carbon monoxide
Hazardous polymerization	Will not occur
Summary of Reactivity:	Oxidizer: Yes Organic Peroxide: No Pyroforic: No Water Reactive: No



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11. Toxicological information

Acute toxicity:

- Rat oral LD50 1671 mg/kg
- Rat dermal LD50 >5000 mg/kg
- Dermal irritation (rabbit) Severe irritant
- Eye irritation (rabbit) Severe irritant
- Dermal sensitization Not a sensitizer

Immediately Dangerous to Life or Health (IDLH)

No level has been established for the components or the product itself.

Effects of overexposure :

- Ocular Severe irritation and/or burns can occur following eye exposure. Contact may cause impairment of vision and corneal damage.
- Dermal Dermal exposure can cause severe irritation and/or burns characterized by redness, swelling and scab formation. Prolonged skin exposure may cause permanent damage.
- Inhalation Irritating to the nose, mouth, throat and lungs. It may also cause burns to the respiratory tract with the production of lung edema that can result in shortness of breath, wheezing, choking, chest pain, and impairment of lung function. Inhalation of high concentrations can result in permanent lung damage from the corrosive action to the lung.
- Ingestion Irritation and/or burns can occur to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding and/or tissue ulceration. Ingestion causes severe damage to the gastrointestinal tract with the potential to cause perforation.

Chronic toxicity Chronic inhalation exposure may cause impairment of lung function and permanent lung damage.

Mutagenicity Not mutagenic in five Salmonella strains with or without metabolic activation.

Carcinogenicity Not classified by IARC, OSHA, EPA.
Not included in NTP 11th Report on Carcinogens



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Reproductive toxicity Sodium dichloroisocyanuric acid when given orally to pregnant mice from day 6 to day 15 of gestation, did not induce any significant teratogenic effects.

12. Ecological information

Aquatic toxicity :
 - 96 Hour-LC50, Fish 0.22 mg/l (rainbow trout)
 0.28 mg/l (bluegill sunfish)
 - 48 Hour-LC50, Daphnia magna 0.2 mg/l

Avian toxicity:
 - Oral LD50, Bobwhite quail 730 mg/kg
 - Oral LD50, Mallard duck 3300 mg/kg
 - Dietary LC50, Mallard duck >10,000 ppm
 - Dietary LC50, Bobwhite quail >10,000 ppm

13. Disposal considerations

Waste disposal Care must be taken to prevent environmental contamination from the use of this material.
 Dispose of in a safe manner in accordance with local/national regulations.

14. Transportation information

IMO UN No. 3077
 Proper shipping name: Environmentally hazardous substance, solid, n.o.s (Sodium Dichloroisocyanurate,dihydrate)
 Class: 9 - Miscellaneous Dangerous Substances and articles
 Label: 9
 Mark: MARINE POLLUTANT
 Packing Group: III

ADR/RID Proper shipping name: Environmentally hazardous substance, solid, n.o.s (Sodium Dichloroisocyanurate,dihydrate)
 Class: 9 - Miscellaneous Dangerous Substances and Articles
 Classification Code: M7
 Hazard identification No. 90
 Packing group: III
 Marking: Environmentally hazardous substance



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14. Transportation information

ICAO/IATA UN No. 3077
 Proper shipping name: Environmentally hazardous substance, solid, n.o.s (Sodium Dichloroisocyanurate, dihydrate)
 Class: 9
 Hazard label(s): Miscellaneous
 Packing group: III
 Marking: Environmentally hazardous substance

DOT NOT REGULATED FOR ROAD TRANSPORTATION

For Vessel only:
 UN No. 3077
 Proper shipping name: Environmentally hazardous substance, solid, n.o.s (Sodium Dichloroisocyanurate, dihydrate)
 Class: 9 - Miscellaneous Hazardous Material
 Label: 9
 Marking: Marine Pollutant
 Packing Group: III

15. Regulatory information

EU Reported in EINECS

- Indication of danger Harmful, symbol required (Xn)
 Dangerous for the environment, symbol required (N)

- R Phrases R 22: Harmful if swallowed.
 R 31: Contact with acids liberates toxic gas.
 R 36/37: Irritating to eyes and respiratory system.
 R 50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

- S Phrases S 8: Keep container dry.
 S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 S 41 :In case of fire and/or explosion do not breathe fumes.
 S60: This material and its container must be disposed of as hazardous waste.
 S61: Avoid release to the environment. Refer to special instructions/Safety data sheets.

USA All the components of this substance are listed on or are exempt from the inventory



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Australia	Listed in AICS
China inventory	Listed
Japan	ENCS No. 5-1043X, 1-236
Japanese METI	ENCS Nos: 5-1043X, 1-236
New Zealand Inventory	Listed in NZIoC
Philippines	Listed in PICCS

16. Other information

This data sheet contains changes from the previous version in section(s)
2, 3, 9

The information in this Material Safety Data Sheet should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product. This information has been prepared for the guidance of plant engineering, operations and management and for persons working with or handling this product. Additionally, if this Material Safety Data Sheet is more than three years old, you should contact Clearon at the phone number listed below to make certain that this sheet is current.

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, Clearon Corp. makes no representations as to the completeness or accuracy thereof.

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In an event of discrepancy between the contents of this MSDS and the English version of it, the English version shall prevail.

Prepared by HEALTH, SAFETY & ENVIRONMENT DEPARTMENT
CLEARON CORPORATION
95 MacCorkle Ave., S.W.
South Charleston, WV 25303
USA
Phone number: (304) 746-3000

End of safety data sheet



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SECTION I CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

BleachTech LLC
8929 Ryan Rd.
Seville, Ohio 44273
1-330-769-5000

EMERGENCY RESPONSE NUMBER:
1-330-769-5000 (24 hours)

DISTRIBUTED BY:
NOLWOOD CHEMICALS, INC.
10900 Harper Avenue
Detroit, MI 48218
(313) 925-0300

SUBSTANCE: SODIUM HYPOCHLORITE *11934*
TRADE NAME: BleachTech 12.5% Solution
CHEMICAL NAME/SYNONYMS: Sodium Hypochlorite Solution, Bleach Solution, Bleach Liquor, Hypo-
solution, Bleach, and Liquid Bleach.
CAS NUMBER: 7681-52-9
CHEMICAL FAMILY: Alkali
FORMULA: NaOCl
DOT PROPER SHIPPING NAME: Hypochlorite Solution
DOT HAZARD CLASS: 8 (Corrosive) PG III; PG II (For solutions greater than 16% available chlorine)
DOT IDENTIFICATION NO: UN1791
RQ: 100 pounds
DOT EMERGENCY GUIDE NO: 154

SECTION II COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENT(S):	
Sodium Hypochlorite (NaOCl)	10.0 - 20.0% wt
Sodium Hydroxide (NaOH)	0.1 - 0.4% wt
Inerts (water and NaCl)	79.7 - 89.9% wt

SECTION III HAZARDS IDENTIFICATION

NFPA CLASSIFICATION (SCALE 0-4): Health=2 Fire=0 Reactivity=1
EC CLASSIFICATION (ASSIGNED): C (Corrosive)

EMERGENCY OVERVIEW

COLOR: Yellow PHYSICAL FORM: Liquid ODOR: Chlorine Odor
MAJOR HEALTH HAZARDS: Respiratory Tract Burns, Skin Burns, Mucous Membrane Burns, and Eye Irritation
HAZARDOUS MIXTURES WITH OTHER LIQUIDS, SOLIDS, OR GASES: Reacts violently with acids liberating chlorine gas. Also reacts with organic substance. When heated, gives off oxygen that may increase fire hazard

POTENTIAL HEALTH EFFECTS

- INHALATION:
- SHORT TERM EXPOSURE: Irritation to respiratory tract. May have same as effects reported in other routes of exposure, burns, blisters, nausea, difficulty breathing, and lung congestion.
 - LONG TERM EXPOSURE: Same as effects reported in short term exposure.
- SKIN CONTACT:
- SHORT TERM EXPOSURE: Irritant, reddening of the skin. May have burns, blisters, and itching
 - LONG TERM EXPOSURE: Same as effects reported in short term exposure.
- EYE CONTACT:
- SHORT TERM EXPOSURE: Irritation (possibly severe), possible eye damage

**CONTROLLED DOCUMENT
IF STAMPED IN RED**

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- LONG TERM EXPOSURE: Same as effects reported in short term exposure.
- INGESTION
- SHORT TERM EXPOSURE: Burns, vomiting stomach pain, disorientation, bluish skin color, convulsions, coma
 - LONG TERM EXPOSURE: Same as effects reported in short term exposure.

CARCINOGEN STATUS OSHA: N NTP: N IARC: N

SECTION IV FIRST AID MEASURES

INHALATION: Remove from exposure and get fresh air. Use bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Keep warm and at rest. Get medical attention immediately if artificial respiration required.

SKIN CONTACT: Remove contaminated clothing, jewelry, and shoes immediately. Flush affected area with large amounts of water, preferably a safety shower. Use soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). For burns, cover affected area securely with sterile, dry, loose fitting dressing. If skin is burned, get medical attention immediately.

EYE CONTACT: Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains (at least 15 minutes). Continue irrigating with a normal saline solution until ready to transport to physician. Cover with sterile bandages. Get medical attention immediately.

INGESTION: Rinse mouth with water. Drink large quantities of milk (water if no milk is available). Milk of magnesia may be helpful. **DO NOT USE ACIDIC ANTIDOTES SUCH AS SODIUM BICARBONATE.** When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, do not induce vomiting and turn their head to the side. Never make an unconscious person vomit or drink fluids. Get medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen. For ingestion, avoid gastric lavage, emesis, sodium bicarbonate and acid solutions. Consider the use of antacids.

SECTION V FIRE FIGHTING MEASURES

FLASH POINT: Non-flammable **FLAMMABLE LIMITS:** Non-flammable

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard. Oxidizer. This material will react with some metals and cause liberation of oxygen. May ignite or explode on contact with combustible materials. Toxic fumes can be liberated by contact with acid or heat.

EXTINGUISHING MEDIA: Regular dry chemical, carbon dioxide, water, or foam suitable for surrounding fire. For large fires, use regular foam or flood with fine water spray.

FIRE FIGHTING: Wear self-contained breathing apparatus and full protective clothing. Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Use extinguishing agents appropriate for surrounding fire. Do not get water directly on material. For large fires, flood with fine water spray. Reduce vapors with water spray. Apply water from a protected location or from a safe distance. Avoid body contact or inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

SECTION VI ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE: Do not touch spilled material. Stop leak if possible without personal risk. For small spills, collect spilled material in appropriate container for disposal and consider absorbing with sand or other non-combustible material (e.g., do not use sawdust or other combustible material). Be advised, however, that the use of absorbing material is creating hazardous waste and this absorbing material must now be disposed of properly. Collect spilled material in appropriate container for disposal. For small dry spills, move containers away from spill



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to a safe area. For large spills, dike for later disposal. If possible, do not allow material to enter sewers, streams, ponds or storm conduits as concentrated solutions will seriously injure aquatic life. Keep unnecessary people away, isolate hazard area and deny entry. Contain in as small an area as possible, such as a holding area for dilution and neutralization. Contain spill in plastic drums when available. Dispose of in accordance with Federal, State, and local regulations. Personnel engaged in cleanup operations must be equipped with NIOSH approved respirator protection, rubber boots, gloves, and clothing to avoid body contact. Reportable Quantity (RQ): 100 pounds. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802(USA) or (202) 426-2675 (USA).

ADVANCE PLANNING Plan in advance for an occupational release and have necessary equipment and neutralization agents on-site. Contact BleachTech for assistance.

SECTION VII HANDLING AND STORAGE

Store in vented, closed containers that provide protection from direct sunlight. Keep separated from incompatible substances and do not store near acids, heat, or oxidizable materials or organics. When handling, do not mix with other cleaning agents that may liberate chlorine gas vapors (e.g., acidic agents).

Store and handle in accordance with all current regulations and standards including NFPA 430 Code for the Storage of Liquid and Oxidizing Materials.

SECTION VIII EXPOSURE CONTROLS AND PERSONNEL PROTECTION

EXPOSURE LIMITS: 2 mg/m³ AIHA recommended STEL 15 minute(s) for Sodium Hypochlorite

VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Splash goggles are preferred to a faceshield. Another option is to wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: It is recommended to wear appropriate chemical resistant clothing to avoid body contact such as a rubber apron or rain suit. Boots are preferred for footwear.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed.

Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s)
- Any air-purifying respirator with a full facepiece and an organic vapor canister
- Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply (Use for Unknown Concentrations or those that may be Immediately Dangerous to Life or Health)
- Any self-contained breathing apparatus with a full facepiece (Use for High Concentrations or those which are immediately Dangerous to Life or Health)

SECTION IX PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL APPEARANCE: Liquid **APPEARANCE AND ODOR:** Clear - Chlorine odor like household bleach **COLOR:** Greenish - Yellowish cast **MOLECULAR WEIGHT:** 74.44 **MOLECULAR FORMULA:** Na-O-Cl

BOILING POINT: Degrades at 230 Degrees Fahrenheit **FREEZING POINT:** 7 Degrees Fahrenheit

SPECIFIC GRAVITY: 1.15 - 1.17 at 60 Degrees Fahrenheit **PH:** Approximately 11 - 13

VAPOR PRESSURE (mm HG): Vapor Pressure of water + decomposition product Vapor Pressure



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VAPOR DENSITY: Not Available SOLUBILITY IN WATER: Complete VOLATILITY: Not Available
EVAPORATION RATE: >1 COEFFICIENT OF WATER /OIL DISTRIBUTION: Not Available

SECTION X STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Dangerous gases may accumulate in confined spaces. May ignite or explode on contact with combustible materials.

INCOMPATIBLES: Acids, metals, amines, combustible materials, reducing agents. Specific reactions with sodium hypochlorite include the following:

ACIDS: Violent reaction. ALUMINUM: Corrosive action. AMINES: Form explosive chloramines.

AMMONIA: Form explosive chloramines. AMMONIUM SALTS: May form explosive product.

BENZYL CYANIDE (ACIDIFIED): Explosive reaction. CELLOULOSE: Violent reaction

ETHYLENEIMINE: Forms explosive 1-chloroethyleneimine. FORMIC ACID: Explosive mixture.

METHANOL: May form explosive compound. NITROGEN COMPOUNDS: Forms explosive N-chloro compounds.

ORGANIC AND COMBUSTIBLE MATERIALS: Fire and explosion hazard. OXALIC ACID: Intense reaction

REDUCING AGENTS: Fire and explosion hazard ZINC: Corrosive

HAZARDOUS DECOMPOSITION: Thermal decomposition products - Chlorine and Hydrochloric Acid Vapors.

Decomposition Products Hypochlorous Acid Vapors POLYMERIZATION: Will not polymerize.

SECTION XI SODIUM HYPOCHLORITE TOXICOLOGICAL INFORMATION

IRRITATION DATA: 10 mg eyes rabbit moderate

TOXICITY DATA:

1gm/kg oral-woman; TDLo: 45mg/kg intravenous-man TDLo: 5800 mg/kg oral-mouse LD50: 140 mg/kg/9

week(s) continuous oral-rat TDLo

CARCINOGEN STATUS: According to the IARC, animal inadequate evidence, human no adequate data, Group 3

(Hypochlorite salts)

LOCAL EFFECTS:

Corrosive: inhalation, skin contact, eye, ingestion hazards

ACUTE TOXICITY LEVEL:

Slightly Toxic if ingested

MUTAGENIC DATA:

Mutation in micro organisms Salmonella typhimurium 1mg/plate (-S9): DNA repair - Escherichiacoli 20ug/

disc: DNA damage - Escherichiacoli 420 umol/L; phage inhibition capacity - Escherichiacoli 103 ug/well;

m micronucleus test - non-mammalian species multiple 200 ppb; cytogenetic analysis - non-mammalian species

multiple 120 ug/L; cytogenetic analysis human lymphocyte 100 ppm 24hour(s); sister chromatid exchange -

human embryo 149 mg/L; cytogenetic analysis - hamster lung 100 mg/L

HEALTH EFFECTS:

INHALATION

ACUTE EXPOSURE: May cause severe bronchial irritation, sore throat with possible blistering, coughing, stomatitis, nausea, labored breathing, shortness of breath and pulmonary edema. 10-20 mg/m³ causes burning of the nose and throat; 40-60 mg/m³ may be fatal. If sufficient amounts are absorbed, may cause effects as detailed in acute ingestion.

CHRONIC EXPOSURE: No data available.

SKIN CONTACT

ACUTE EXPOSURE: Extent of damage depends on concentration, pH, volume of solution & time of contact. May cause redness, pain, blistering, itchy eczema & chemical burns. Sensitization reactions possible in previously exposed persons.

CHRONIC EXPOSURE: Effects depend on concentration and duration of exposure. Repeated or prolonged contact with corrosive substances may result in dermatitis or effects similar to acute exposure. Allergic dermatitis has also



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been reported.

EYE CONTACT

ACUTE EXPOSURE: May cause redness, pain, & blurred vision. Solutions of 5% splashed in human eyes have caused a burning sensation and later only slight superficial disturbance of the corneal epithelium which cleared completely in the next day or two without special treatment. However, one animal study reports a 5% solution causing only moderate irritation with clearing within 7 days. A higher concentration of 15% tested on rabbit eyes caused immediate severe pain, hemorrhages, rapid onset of ground-glass appearance of the corneal epithelium, moderate bluish edema of the whole cornea, chemosis and discharge for several days. Such eyes have sometimes healed in 2-3 weeks with slight or no residual corneal damage but they had neovascularization of the conjunctiva and distortion of the nictitating membrane by scarring.

CHRONIC EXPOSURE: Depending on concentration and time of exposure, symptoms may be as those of acute exposure.

INGESTION

ACUTE EXPOSURE: May cause irritation and erosion of the mucous membranes, vomiting (possibly bloody) and abdominal pain and spasms. A drop in blood pressure, shallow respiration, edema (possibly severe) of pharynx, larynx, and glottis, confusion, convulsions, delirium and coma may occur. Cyanosis and circulatory collapse are possible. Esophageal or gastric perforation and strictures are rare. Death may occur, usually due to complications of severe local injury such as toxemia, shock, perforations, hemorrhage, infection and obstruction. Massive ingestions may produce fatal hyperchloremic metabolic acidosis or aspiration pneumonitis.

CHRONIC EXPOSURE: Sensitization reactions are reported in individuals who are exposed in small amounts through their water supply. High doses have caused sperm abnormality in mice.

SECTION XII ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

FISH TOXICITY: 94.0 ug/L 96h hour(s) LC50 (Mortality) Cutthroat trout (*Oncorhynchus clarki*)
 INVERTEBRATE TOXICITY: 31.6 ug/L 7 hour(s) LC50 (Species Diversity) Protozoan phylum (Protozoa)
 ALGAL TOXICITY: 90 ug/L 96 hour(s) LC50 (Mortality) Algae, phytoplankton, algal mat (Algae)
 PHYTOXICITY: 230 ug/L 35 hour(s) (Biomass) Curled pondweed (*Potamogeton crispus*)
 OTHER TOXICITY: 2.1 ug/L 28 day(s) (Chlorophyll) Aquatic community (Aquatic community)

ENVIRONMENTAL SUMMARY: Highly toxic to aquatic life.

SECTION XIII DISPOSAL CONSIDERATIONS

Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. Dispose in accordance with all applicable regulations.

SECTION XIV TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101 SHIPPING NAME-UN NUMBER: Sodium Hypochlorite - UN1791

U.S. DOT 49 CFR 172.101 HAZARD CLASS OR DIVISION: 8

U.S. DOT 49 CFR 172.101 PACKING GROUP: III(less than 16% available chlorine) / II(16% or more available chlorine)

U.S. DOT 49 CFR 172.101 AND SUBPART E LABELING REQUIREMENTS: Corrosive

U.S. DOT 49 CFR 172.101 PACKAGING AUTHORIZATIONS:

EXCEPTIONS: 49 CFR 173.154

NON- BULK PACKAGING: 49 CFR 173.203 (less than 16% available chlorine) / 49 CFR 173.202 (16% or more available chlorine)

BULK PACKAGING: 49 CFR 173.241 (less than 16% available chlorine) / 49 CFR 173.242 (16% or more available chlorine)

U.S. DOT 49 CFR 172.101 QUANTITY LIMITATIONS:



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PASSENGER AIRCRAFT OR RAILCAR: 5 LITERS / (less than 16% available chlorine) / 1 LITERS (16% or more available chlorine)

CARGO AIRCRAFT ONLY: 60 LITERS / (less than 16% available chlorine) / 30 LITERS (16% or more available chlorine)

SECTION XV REGULATORY INFORMATION

U.S. REGULATIONS

TSCA INVENTORY STATUS: Y TSCA 12(b) EXPORT NOTIFICATION: Not listed.
 CERCLA SECTION 103 (40CFR302.4): Y SODIUM HYPOCHLORITE: 100 LBS RQ
 SARA SECTION 302 (40CFR355.30): N SARA SECTION 304 (40CFR355.40): N
 SARA SECTION 313 (40CFR372.65): N
 SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):
 ACUTE: Y CHRONIC: N FIRE: N REACTIVE: N SUDDEN RELEASE: N
 OSHA PROCESS SAFETY (29CFR1910.119): N
 STATE REGULATIONS: California Proposition 65: N
 EUROPEAN REGULATIONS: EC NUMBER (BINECS): 231-668-3

EC RISK AND SAFETY PHRASES:

R 31 Contact with acids liberates toxic gas.

R 34 Causes burns.

S 1: Keep locked-up and out of reach of children.

S 28b After contact with skin, wash immediately with plenty of soap and water.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

S 50 Do not mix with incompatible materials.

CONCENTRATION LIMITS:

C ₁₀ 10%	C	R 31-34
5% ^a - C ₁₀ = 10%	Xi	R 31-36/38

GERMAN REGULATIONS: WATER HAZARD CLASS (WGK): 2 (Official German Classification)

SECTION XVI OTHER INFORMATION

For additional information, contact our technical service department.

Information contained in this MSDS refers only to the specific material designated and does not relate to any process or use involving other materials. This information is based on data believed to be reliable, and the Product is intended to be used in a manner that is customary and reasonably foreseeable. Since actual use and handling are beyond our control, no warranty, express or implied, is made and no liability is assumed by BleachTech LLC in connection with the use of this information.



WITCO CHEMICAL -- 0903175 WITCONATE SXS-2
 MATERIAL SAFETY DATA SHEET
 NSN: 685000F034396
 Manufacturer's CAGE: 4X549
 Part No. Indicator: A
 Part Number/Trade Name: 0903175 WITCONATE SXS-2

=====
 General Information
 =====

Company's Name: WITCO CHEMICAL CO
 Company's Street: 3230 BROOKFIELD ST
 Company's City: HOUSTON
 Company's State: TX
 Company's Country: US
 Company's Zip Code: 77045-6610
 Company's Emerg Ph #: 302-328-5661
 Company's Info Ph #: 713-433-7281
 Record No. For Safety Entry: 001
 Tot Safety Entries This Stk#: 001
 Status: SE
 Date MSDS Prepared: 20FEB90
 Safety Data Review Date: 13MAY94
 MSDS Preparer's Name: CHARLES GREEN
 Preparer's Company: WITCO CHEMICAL CO
 Preparer's St Or P. O. Box: 3230 BROOKFIELD ST
 Preparer's City: HOUSTON
 Preparer's State: TX
 Preparer's Zip Code: 77045-6610
 MSDS Serial Number: BTNMN

=====
 Ingredients/Identity Information
 =====

Proprietary: NO
 Ingredient: SODIUM XYLENE SULFONATE, SODIUM DIMETHYLBENZENESULFONATE
 Ingredient Sequence Number: 01
 Percent: >3.2
 NIOSH (RTECS) Number: ZE5100000
 CAS Number: 1330-72-7

 Proprietary: NO
 Ingredient: WATER
 Ingredient Sequence Number: 02
 Percent: >3
 NIOSH (RTECS) Number: ZC0110000
 CAS Number: 7732-18-5

=====
 Physical/Chemical Characteristics
 =====

Appearance And Odor: VERY LIGHT YELLOW CLEAR LIQUID W/MILD ODOR.
 Specific Gravity: 1.18
 Solubility In Water: SUPP
 Percent Volatiles By Volume: 55-60
 pH: 7-9

=====
 Fire and Explosion Hazard Data
 =====



Flash Point: >200F
 Flash Point Method: PMCC
 Extinguishing Media: DRY CHEMICAL, WATER SPRAY, WATERFOG, CO2, FOAM, SAND/
 EARTH.
 Special Fire Fighting Proc: USE SCBA & PROTECTIVE CLOTHING.

=====
 Reactivity Data
 =====

Stability: YES
 Cond To Avoid (Stability): TEMP <40 & >120F
 Materials To Avoid: STRONG OXIDIZERS, HYDROGEN PEROXIDE, BROMINE, CHROMIC
 ACID
 Hazardous Decomp Products: CO2, CO, OXIDES OF SULFUR.
 Hazardous Poly Occur: NO

=====
 Health Hazard Data
 =====

Route Of Entry - Inhalation: NO
 Route Of Entry - Skin: NO
 Route Of Entry - Ingestion: NO
 Health Haz Acute And Chronic: EYE: IRRITANT.
 Carcinogenicity - NTP: NO
 Carcinogenicity - IARC: NO
 Carcinogenicity - OSHA: NO
 Explanation Carcinogenicity: NONE
 Signs/Symptoms Of Overexp: IRRITATION.
 Emergency/First Aid Proc: EYES/SKIN: FLUSH W/LARGE QUANTITIES OF WATER FOR
 15 MINS. OBTAIN MEDICAL ATTENTION IN ALL CASES.

=====
 Precautions for Safe Handling and Use
 =====

Steps If Matl Released/Spill: ABSORB W/AN INERT MATERIAL SUCH AS SAND,
 SOIL/VERMICUL. SWEEP UP & DISPOSE.
 Waste Disposal Method: DISPOSE OF IAW/LOCAL, STATE & FEDERAL REGULATIONS.
 Precautions-Handling/Storing: STORE BETWEEN 40F & 120F.

=====
 Control Measures
 =====

Ventilation: MECHANICAL
 Protective Gloves: RUBBER/PLASITC/SOLVENT RESISTANT.
 Eye Protection: CHEMICAL SAFETY GOGGLES
 Other Protective Equipment: NEOPRENE TYPE APRON.
 COMPLETE.

=====
 Transportation Data
 =====

=====
 Disposal Data
 =====

=====
 Label Data
 =====

Label Required: YES
 Technical Review Date: 13MAY94
 Label Date: 13MAY94
 Label Status: F



Common Name: WITCONATE SXS-2
Chronic Hazard: NO
Signal Word: CAUTION!
Acute Health Hazard-Slight: X
Contact Hazard-Slight: X
Fire Hazard-Slight: X
Reactivity Hazard-None: X
Special Hazard Precautions: EYE: IRRITANT. POSSIBLE LUNG IRRITATION FROM SILICA. LONG TERM EXPOSURE TO CRYSTALLINE SILICA CAN CAUSE PNEUMOCOSIOSIS. CARCINOGEN: QUARTZ.
Protect Eye: Y
Protect Skin: Y
Label Name: WITCO CHEMICAL CO
Label Street: 3230 BROOKFIELD ST
Label City: HOUSTON
Label State: TX
Label Zip Code: 77045-6610
Label Country: US
Label Emergency Number: 302-328-5661
Year Procured: UNK



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name ALPHA-STEP LD-450
Version # 19
Revision date 09-13-2010
Product code 1470
Chemical class Anionic/nonionic detergent blend
Manufacturer Stepan Company
 22 West Frontage Road
 Northfield, IL 60093
Emergency Medical 800-228-5635
 Chemtrec 800-424-9300
 Chemtrec Int'l 703-527-3887
General information General (847) 446-7500

2. Hazards Identification

Emergency overview WARNING
 COMBUSTIBLE
 Contact with eyes may cause irritation. Contact with skin may cause irritation. May cause irritation of respiratory tract.

Potential health effects

Eyes Contact with eyes may cause irritation.
Skin This product may cause irritation to the skin.
Inhalation Inhalation of vapors or mists of the product may be irritating to the respiratory system.
Ingestion Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Anionic/nonionic blend	Confidential	40 - 50
_Water	7732-18-5	40 - 50
_Ethanol	64-17-5	3 - 5
_Methanol	67-56-1	<1

4. First Aid Measures

First aid procedures

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists get medical attention.
Skin contact For skin contact flush with large amounts of water. Immediately take off all contaminated clothing. If irritation persists get medical attention. Wash clothing separately before reuse.
Inhalation If symptoms are experienced, remove source of contamination or move victim to fresh air. If the affected person is not breathing, apply artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion If ingestion of a large amount does occur, seek medical attention. Do NOT induce vomiting.

5. Fire Fighting Measures

Flammable properties Combustible by OSHA criteria. Vapors may form explosive mixtures with air.

Extinguishing media

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).



Protection of firefighters

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Hazardous combustion products

Not available.

6. Accidental Release Measures

Personal precautions

Isolate area. Keep unnecessary personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering.

Environmental precautions

Prevent further leakage or spillage if safe to do so.

Methods for containment

Prevent entry into waterways, sewers, basements or confined areas.

Methods for cleaning up

Eliminate ignition sources including sources of electrical, static or frictional sparks. Wear appropriate protective equipment and clothing during clean-up.

Small Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Large Spills: Dike far ahead of liquid spill for later disposal.

7. Handling and Storage

Handling

Avoid contact with skin and eyes. Wash hands thoroughly after handling.

Storage

Store in cool place. Keep in a well-ventilated place. Do not handle or store near an open flame, heat or other sources of ignition. Prevent electrostatic charge build-up by using common bonding and grounding techniques.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH

Components

Type

Value

_Ethanol (64-17-5)

STEL

1000 ppm

_Methanol (67-56-1)

BEL

15 mg/l

STEL

250 ppm

TWA

200 ppm

U.S. - OSHA

Components

Type

Value

_Ethanol (64-17-5)

PEL

1900 mg/m3

1000 ppm

_Methanol (67-56-1)

PEL

260 mg/m3

200 ppm

Engineering controls

Use general ventilation. Local exhaust is suggested for use, where possible, in enclosed or confined spaces.

Personal protective equipment

General

Eye wash fountain and emergency showers are recommended.

Eye / face protection

Wear chemical goggles. Face-shield.

Skin protection

Wear suitable protective clothing. Use impervious gloves.

Respiratory protection

If ventilation is not sufficient to effectively prevent buildup of aerosols or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

9. Physical & Chemical Properties

Physical state

Liquid

Form

Liquid.

pH

7 - 8 @10% Aqueous

Boiling point

190 °F (87.8 °C)

Flash point

106 °F (41.1 °C) PMCC

Evaporation rate

Estimated slower than ethyl ether.

Material name: ALPHA-STEP LD-450

MSDS

Material ID: 1036 Product code: 1470 Version #: 19 Revision date: 09-13-2010 Print date: 09-13-2010

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Flammability limits in air, upper, % by volume	NOT DETERMINED.
Vapor pressure	Not Determined or Unknown
Specific gravity	1.01
RVOC	3 - 3.5 %
Viscosity	300 - 600 cps @ 25C
Percent volatile	50 - 55 %

10. Stability & Reactivity

Chemical stability	Stable at normal conditions.
Conditions to avoid	Heat, flames and sparks.
Incompatible materials	Strong oxidizing agents
Hazardous decomposition products	Carbon dioxide, carbon monoxide, oxides of sulfur and nitrogen.
Possibility of hazardous reactions	Will not occur.

11. Toxicological Information

Toxicological data

Components

Test Results

_Ethanol (64-17-5)	Acute Inhalation LC50 Mouse: 0.039 mg/l 4 Hours Acute Inhalation LC50 Rat: 20000 mg/l 10 Hours Acute Oral LD50 Dog: 5.5 g/kg Acute Oral LD50 Guinea pig: 5.6 g/kg Acute Oral LD50 Mouse: 3450 mg/kg Acute Oral LD50 Rat: 7060 mg/kg Acute Oral LD50 Rat: 6.2 g/kg Acute Other LD50 Mouse: 933 mg/kg Acute Other LD50 Rat: 1440 mg/kg
_Methanol (67-56-1)	Acute Dermal LD50 Rabbit: 15800 mg/kg Acute Inhalation LC50 Cat: 43.68 mg/l 6 Hours Acute Inhalation LC50 Rat: 87.5 mg/l 6 Hours Acute Oral LD50 Dog: 8000 mg/kg Acute Oral LD50 Monkey: 2 g/kg Acute Oral LD50 Mouse: 7300 mg/kg Acute Oral LD50 Rabbit: 14.4 g/kg Acute Oral LD50 Rat: 5628 mg/kg Acute Other LD50 Guinea pig: 3556 mg/kg Acute Other LD50 Hamster: 8555 mg/kg Acute Other LD50 Monkey: 3 g/kg Acute Other LD50 Mouse: 4100 mg/kg Acute Other LD50 Rabbit: 1826 mg/kg Acute Other LD50 Rat: 2131 mg/kg

12. Ecological Information

Ecotoxicological data

Components

Test Results

_Ethanol (64-17-5)	EC50 Water flea (Daphnia magna): 11.2 - 11.2 mg/l 48 hours LC50 Fathead minnow (Pimephales promelas): > 100 mg/l 96 hours
--------------------	--



Components

_Methanol (67-56-1)

Test Results

EC50 Water flea (Daphnia magna): > 10000 mg/l 48 hours
 LC50 Fathead minnow (Pimephales promelas): > 100 mg/l 96 hours

13. Disposal Considerations

Disposal instructions Dispose in accordance with all applicable regulations. All wastes must be handled in accordance with local, state and federal regulations. Regulations vary.

14. Transport Information

Notes Refer to bill of lading or container label for DOT or other transportation hazard classification, if any.

15. Regulatory Information

US federal regulations

US CERCLA Hazardous Substances: Reportable quantity

_Methanol (CAS 67-56-1) 5000 LBS

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

_Methanol (CAS 67-56-1) 1.0 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

_Methanol (CAS 67-56-1) Listed.

Reportable Quantity Reportable Quantity (RQ) of this product is 83333 pounds based upon _1,4-Dioxane(123-91-1) which yielded the lowest resultant RQ according to the following formula: CERCLA ingredient RQ / % of that ingredient in the product.

CERCLA (Superfund) reportable quantity

_Methanol 5000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 302 extremely hazardous substance No

Section 311 hazardous chemical No

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

_1,4-Dioxane (CAS 123-91-1) Listed.

US - New Jersey Community RTK (EHS Survey): Reportable threshold

_Methanol (CAS 67-56-1) 500 LBS

Material name: ALPHA-STEP LD-450

MSDS

Material ID: 1036 Product code: 1470 Version #: 19 Revision date: 09-13-2010 Print date: 09-13-2010

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US - New Jersey RTK - Substances: Listed substance

_Ethanol (CAS 64-17-5)	Substance no. 0844
_Methanol (CAS 67-56-1)	Substance no. 1222

US - Pennsylvania RTK - Hazardous Substances: Listed substance

_Ethanol (CAS 64-17-5)	Listed.
_Methanol (CAS 67-56-1)	Listed.

16. Other Information

Further information

HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings

Health: 1
 Flammability: 2
 Physical hazard: 0
 Personal protection: X

NFPA ratings

Health: 1
 Flammability: 2
 Instability: 0

Disclaimer

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Issue date

09-13-2010

This data sheet contains changes from the previous version in section(s):

Composition / Information on Ingredients: Disclosure Overrides
 Toxicological Information: Toxicological Data
 Ecological Information: Ecotoxicity



DISTRIBUTED BY
 PWS NOLWOOD CHEMICALS, INC.
 10900 Harper Avenue
 Detroit, MI 48213
 (313) 925-0900

d-Limonene

Data Sheet - Safety
Sheet

Translate this page automatically

Florida Chemical Company, Inc.

351 Winter Haven Blvd. N.E. • Winter Haven, FL 33881-9432 USA
 Tel: (863) 294-8483 • Fax: (863) 294-7783
 email: saune@floridachemical.com

Product Data Sheet

Preparation Date: August 15, 2000

**CONTROLLED DOCUMENT
IF STAMPED IN RED**

DESCRIPTION 10197

0186

D-Limonene from Florida Chemical Co., Inc. is a biodegradable solvent occurring in nature as the main component of citrus peel oil. D-Limonene's interesting chemical properties, pleasant citrus aroma, & FDA-GRAS rating ("generally recognized as safe") have earned the product phenomenal acceptance in many diverse chemical applications. D-Limonene from Florida Chemical Co., Inc. can be used in its pure form, blended with most other solvents & drying oils, or easily emulsified to make water-soluble cleaning products.

APPEARANCE & ODOR

Clear water-white to slightly yellow liquid with a mild to strong citrus aroma depending on grade

USES & APPLICATIONS

d-Limonene from Florida Chemical Co., Inc. can be used as a replacement for toxic chlorinated solvents: glycol ether, MEK (methyl ethyl ketone), xylene, Freon and CFC's; parts cleaner, engine degreaser (automotive, aircraft, and aerospace industries), electronics cleaning, tar and asphalt remover, asbestos shingle remover, graffiti remover, grease trap maintainer, lift station and sewage treatment applications, hand cleaner, floor cleaner, printing press cleaner, carpet stain cleaner, metal cleaner, aerosol ingredient, fragrance additive, odorant for petroleum industry, heat transfer medium, and possible candidate for a variety of medical applications including cancer and AIDS research.

PACKAGING

Florida Chemical Co., Inc.'s d-Limonene is packaged in epoxy-lined containers as follows:

1-Gallon Pail	7 Pounds Net Weight	3.2 kg. Net Weight
5-Gallon Pail	35 Pounds Net Weight	16 kg. Net Weight



55-Gallon Pail | 390 Pounds Net Weight | 177 kg. Net Weight

Florida Chemical Co., Inc.'s drums are typically orange or black DOT approved steel drums coated with an epoxy phenolic resin liner. All drums of our domestic d-Limonene are filled to a net weight of 390 lbs. Dimensions of 55-gallon drums are: length 23" width 23" and depth 35". Imported drums of Brazilian d-Limonene are slightly smaller and typically filled to net weight of 375 lbs. Tank truck shipments average 6500 gallons (41,000 lbs). Overseas ISO tank shipments are either 20,000 liters (16,800 kg) or 24,000 liters (120,000 kg). Sample quantities (gallons & pints) are packaged in deformed plastic containers or glass (1 oz. samples).

STORAGE & HANDLING

Filled drums should be stored in well ventilated, covered areas at temperatures which should not exceed 70° F (21° C) for extended periods of time. Air should be excluded from partially filled drums by displacement with Nitrogen or CO2. Citrus oils are subject to oxidation. This process may be inhibited by the addition of antioxidants. d-Limonene samples and certificates of analysis from Florida Chemical Co., Inc. are available upon request.

Caution: The user should conduct his/her own experiments and establish proper procedures and controls before attempting use of Florida Chemical Co., Inc.'s d-Limonene on critical parts.

d-Limonene

Data Sheet - Safety Sheet

Florida Chemical Company, Inc.

351 Winter Haven Blvd., N.E. Winter Haven, FL 33881-9432 USA
 Tel: (863) 294-8483 Fax: (863) 294-7783
 email: sa@floridachemical.com

Material Safety Data Sheet

Preparation Date: August 15, 2000

Emergency Phone Numbers

Florida Chemical: (863) 294-8483
 CHEMTREC 24 Hour Number (800) 424-9300
 In Canada, CANUTEC (613) 996-6666

Section I - IDENTIFICATION

Trade Name: D-Limonene - Technical grade, Orange Terpenes, Food grade, Lemon-Lime grade

CAS Number: 5989-27-5 - Technical grade & Lemon-Lime grade

CAS Number: 94266-27-4 - Food grade

CAS Number: 68647-72-3 - Orange Terpenes

Section II - HAZARDOUS COMPONENTS



Volatile Ingredients: D-Limonene (solvent) is the major component (technical grade 95% food grade 96% lemon-lime 70%) with balance other terpene hydrocarbons and oxygenated compounds - octanal, nonanal, decanal, linalool predominant. Product is a by-product of citrus, entirely of natural origin, and to the best of our knowledge and belief contains no artificial flavors, sulfites, nitrites, or pesticide residue exceeding tolerances established by the FDA. Florida Chemical Co., Inc.'s d-Limonene does NOT contain lead, cadmium, mercury, or hexavalent chromium or come in contact with these chemicals since it is a citrus derived essential oil produced by steam distillation. Further, Florida Chemical Co., Inc.'s d-Limonene is packaged in food grade containers with inert liners that do NOT contain lead, cadmium, mercury, or hexavalent chromium. Florida Chemical Co., Inc.'s d-Limonene does NOT contain, and is NOT manufactured with any of the Class I or II ozone-depleting substances listed under the United States Clean Air Act of 1990.

Hazardous Materials Identification System - HMIS:

1	Health Hazard - Mild skin irritant
2	Flammability - Flashpoint above 100° F (38° C)
0	Reactivity - Stable
G	Protection - Safety glasses & gloves recommended

Section III - PHYSICAL DATA

	Technical Grade	Food Grade	Lemon-Lime Grade
Appearance	Yellow to water-white oil	Water-white oil	Water-white oil
Odor	Strong orange aroma	Mild orange aroma	Mild lemon-lime aroma
Specific Gravity (25°C)	0.838 - 0.843	0.838 - 0.843	0.841 - 0.848
Refractive Index (20°C)	1.4710 - 1.474	1.4710 - 1.4740	1.470 - 1.4770
Optical Rotation (25°C)	+96° - +104°	+96° - +104°	+70° - +75°
Flashpoint (cc)	116° F (46°C)	113° F (45°C)	119° F (48°C)
Boiling Point	316° F (154°C)	325° F (163°C)	332° F (167°C)
Evaporation Rate	Medium/Fast	Medium/Fast	Medium/Fast
Water Solubility	Insoluble	Insoluble	Insoluble
Vapor Pressure (20°C)	2mmHg	2mmHg	2mmHg
Percent Volatile by Volume	95+%	95+%	95+%

Section IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (cc): 116°F (46°C) (Technical grade), 113°F (45°C) (Food grade), 119°F (48°C) (Lemon-Lime grade) (respectively).

Flammable Limits: LFL = 7% UEL = 6.1% (Identified for Technical grade only)

Extinguishing Media: Carbon dioxide, foam or dry chemical

Special Fire Fighting Procedures: SCBA recommended. Smother to exclude air. Do not use water. Handle as an oil fire.

Unusual Fire and Explosive Hazards: Combustible liquid. Keep away from heat, sparks, and open flame. Guard against spontaneous combustion of improperly discarded oily rags.

Incompatibility (Materials to avoid): Strong oxidizing agents and acidic agents



including acidic clays, peroxides, halogens, vinyl chloride, and iodine pentafluoride.
Hazardous Decomposition Materials: Smoke may be acrid and fume irritating. Burning generates CO, CO₂, and smoke.
Hazardous Polymerization: None described.
Conditions to Avoid for Polymerization: Polymerization catalysts such as aluminum chloride and acidic clays.
Stability Considerations: Stable.
Conditions to Avoid for Stability: Avoid temperatures over 115° F (46°C).

Section V - HEALTH HAZARD DATA

Health Hazards (Acute and Chronic): Product is harmful if swallowed. Ingestion may cause vomiting, headache, and other medical problems. May be irritating to skin and eyes. Skin contact may cause slight redness. Contains a potential skin sensitizer. Eye contact can cause moderate to high irritation. Inhalation can cause nose, throat, and respiratory tract irritation, coughing and headache. Prolonged or repeated exposure can cause drying, defatting, and dermatitis of skin.
Signs and Symptoms of Exposure: Product may be irritating to the skin, eyes, nose and throat.
Medical Conditions Generally Aggravated by Exposure: Persons with allergies or pre-existing skin conditions should avoid contact with this product.
Emergency & First Aid Procedures Eyes: Remove contact lenses at once. Flush with water for at least 15 minutes. If irritation persists, seek medical attention.
Skin: Wash affected area with copious amounts of soap and water. If irritation develops, seek medical attention.
Ingestion: Seek medical attention immediately. Do not induce vomiting. Rinse mouth with water, then drink one glass of water. Do not leave victim unattended. Never give anything by mouth if victim is unconscious, is rapidly losing consciousness, or is convulsing.
Inhalation: If symptoms of overexposure are experienced, evacuate to fresh air. If symptoms persist, seek medical attention.

Section VI - TOXICOLOGY DATA

Acute Eye Irritation: Eye irritation: rabbit. Severely irritating.
Acute Skin Irritation: Skin irritation: rabbit. Severely irritating.
Acute Dermal Toxicity: LD50: >5 g/kg, rabbit.
Acute Respiratory Irritation: No test data found for product.
Acute Inhalation Toxicity: No test data found for product.
Acute Oral Toxicity: LD50: >5 g/kg, rat.
Chronic Toxicity: This product does not contain any substances that are considered by OSHA, NTP, IARC or ACGIH to be "probable" or "suspected" human carcinogens.
Ecotoxicological Information: Product may be toxic to aquatic organisms.

Section VII - SPILL OR LEAK PROCEDURES

Steps to be Taken if Material is Released or Spilled: Use protective gloves to avoid skin contact. Small spills can be wiped up. Large spills should be absorbed by dirt, sand, or other suitable absorbents for disposal. Do not hose spills down.



drains, sewers, or waterways. D-Limonene may be toxic to aquatic organisms. Move leaking containers to well-ventilated area. No smoking. Eliminate any source of ignition. Minimize inhalation. Use NIOSH approved respiratory protection device in areas of high vapor concentration. CAUTION: slippery on floor.

Waste Disposal Method: Incinerate or Dispose in Accordance with Local, State, and Federal Regulations. Taking regulations into consideration, waste may be incinerated or handled through EPA spill control plan via land fill or dilution.

Section VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection: Not normally required. If vapor concentration becomes high, use NIOSH approved respirator.
Ventilation: Local exhaust should be adequate. Mechanical ventilation otherwise recommended if necessary.
Skin Protection: Oil resistant gloves.
Eye Protection: Safety goggles or glasses suggested.
Other Protective Equipment: Oil resistant apron, emergency eye wash and shower stations.
Appropriate Hygienic Practices: Wash thoroughly after handling. Launder contaminated clothing before re-use.

Section IX - SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storing: Usual precautions for combustible liquids.
Handling and Storage Precautions: Store in sprinklered warehouse. Avoid contact with incompatible chemicals listed in Section IV. Store in tightly sealed, full containers at temperatures below 70° F (21° C). Partially filled containers should be blanketed with nitrogen.
Other Precautions: Product may expand slightly in storage causing pressure to build in container. Open container carefully if product appears to be under pressure. Drum lining may occasionally chip and fall to bottom of container after long storage or excessive handling. As a precaution, pour liquid through filter/strainer to catch small pieces of liner before blending or repackaging. Commercially clean empty containers before re-use. CAUTION: Do not weld or cut empty containers (Vapors May Ignite).

Section X - REGULATORY INFORMATION

Inventory	Status
United States (TSCA)	Listed on the inventory.
Canada (DSL)	Listed on the inventory.
European Union (EINECS)	Listed on the inventory.
Australia (AICS)	Listed on the inventory.
Japan (MITI)	Listed on the inventory.
South Korea (KECL)	Listed on the inventory.



MATERIAL SAFETY DATA SHEET

1. Chemical Product & Company Identification

Material name NINOL 11-CM
Version # 16
Revision date 07-23-2009
Product code 0298
Chemical class Alkanolamide
Manufacturer Stepan Company
 22 West Frontage Road
 Northfield, IL 60093 USA
Emergency Medical 800-228-5635
 Chemtrec 800-424-9300
 Chemtrec Int'l 703-527-3887
General information General (847) 446-7500

2. Hazards Identification

Emergency overview Moderately irritating to the eyes. Moderate skin irritation. This product may be severely irritating to the skin. May cause irritation of respiratory tract. May be harmful if swallowed.

Potential health effects

Eyes Moderately irritating to the eyes.

Skin Moderate skin irritation. This product may be severely irritating to the skin.

Inhalation Inhalation of vapors or mists of the product may be irritating to the respiratory system.

Ingestion May be harmful if swallowed. May cause dizziness, incoordination, headache, nausea, and vomiting.

3. Composition / Information on Ingredients

Components	CAS #	Percent
_Cocoamide DEA	68603-42-9	60 - 70
Amine Soap	Confidential	10 - 30
_Diethanolamine	111-42-2	10 - 15

4. First Aid Measures

First aid procedures

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists get medical attention.

Skin contact For skin contact flush with large amounts of water. Get medical attention if irritation develops or persists. Immediately take off all contaminated clothing. Wash clothing separately before reuse.

Inhalation If symptoms are experienced, remove source of contamination or move victim to fresh air. If symptoms persist, get medical attention. If the affected person is not breathing, apply artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting.

5. Fire Fighting Measures

Extinguishing media

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Protection of firefighters

Protective equipment and precautions for firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental Release Measures

Personal precautions Isolate area. Keep unnecessary personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering.

Material name: NINOL 11-CM
 Material ID: 249 Product code: 0298 Version #: 16 Revision date: 07-23-2009 Print date: 07-23-2009

MSDS
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Environmental precautions Prevent further leakage or spillage if safe to do so.
Methods for containment Prevent entry into waterways, sewers, basements or confined areas.
Methods for cleaning up Wear appropriate protective equipment and clothing during clean-up.
 Small Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.
 Large Spills: Dike far ahead of liquid spill for later disposal.

7. Handling and Storage

Handling Avoid contact with skin and eyes. Wash hands thoroughly after handling.
Storage Store in cool place. Keep in a well-ventilated place.

8. Exposure Controls / Personal Protection

Exposure limits

ACGIH		
Components	Type	Value
_Diethanolamine (111-42-2)	TWA	2 mg/m3

U.S. - OSHA		
Components	Type	Value
_Diethanolamine (111-42-2)	TWA	3 ppm 15 mg/m3

Engineering controls Use general ventilation. Local exhaust is suggested for use, where possible, in enclosed or confined spaces.

Personal protective equipment

General Eye wash fountain and emergency showers are recommended.
Eye / face protection Wear chemical goggles. Face-shield.
Skin protection Wear suitable protective clothing. Use impervious gloves.
Respiratory protection If ventilation is not sufficient to effectively prevent buildup of aerosols or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

9. Physical & Chemical Properties

Physical state Liquid.
Form Liquid.
pH 8 - 10 (1% in H2O)
Boiling point > 302 °F (> 150 °C)
Flash point > 201 °F (> 93.9 °C) PMCC
Evaporation rate Estimated slower than ethyl ether.
Flammability limits in air, upper, % by volume NOT DETERMINED.
Vapor pressure Not Determined or Unknown
Vapor density Estimated heavier than air.
Specific gravity 8.27 lb/gal (@ 25 C)
Solubility (water) Soluble
RVOC 0 %
Pour point 43 °F (6.1 °C)
Viscosity 1155 cps (@ 25 C)

10. Stability & Reactivity

Chemical stability Stable at normal conditions.
Incompatible materials Strong oxidizing agents Nitrous acid and other nitrosating agents
Hazardous decomposition products Nitrogen oxides (NOx). Ammonia



Possibility of hazardous reactions Will not occur.

11. Toxicological Information

Toxicological data

Product

Test Results

NINOL 11-CM

Acute Oral LD50 Rat: 5000 - 15000 mg/kg

* Estimates for product may be based on additional component data not shown.

Sensitization

US ACGIH Threshold Limit Values: Skin designation

_Diethanolamine (111-42-2) Can be absorbed through the skin.

Carcinogenicity

IARC Monographs: Evidence of carcinogenicity in humans

_Diethanolamine (111-42-2) Inadequate data.

IARC Monographs: Overall evaluation

_Diethanolamine (111-42-2) 3 Classification not possible from current data.

US ACGIH Threshold Limit Values: A3 carcinogen

_Diethanolamine (111-42-2) Group A3 Confirmed animal carcinogen with unknown relevance to humans.

12. Ecological Information

Not available.

13. Disposal Considerations

Disposal instructions

Dispose in accordance with all applicable regulations. All wastes must be handled in accordance with local, state and federal regulations. Regulations vary.

14. Transport Information

Notes

Refer to bill of lading or container label for DOT or other transportation hazard classification, if any.

15. Regulatory Information

US federal regulations

US CERCLA Hazardous Substances: Reportable quantity

_Diethanolamine (111-42-2) 100 LBS

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

_Diethanolamine (111-42-2) 1.0 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

_Diethanolamine (111-42-2) Listed.

Reportable Quantity

Reportable Quantity (RQ) of this product is 833 pounds based upon _Diethanolamine(111-42-2) which yielded the lowest resultant RQ according to the following formula: CERCLA ingredient RQ / % of that ingredient in the product.

CERCLA (Superfund) reportable quantity

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 302 extremely hazardous substance No

Section 311 hazardous chemical No

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of New and Existing Chemicals (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No

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Country(s) or region	Inventory name	On inventory (yes/no)*
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations

- US - New Jersey Community RTK (EHS Survey): Reportable threshold**
 _Diethanolamine (111-42-2) 500 LBS
- US - New Jersey RTK - Substances: Listed substance**
 _Diethanolamine (111-42-2) Substance no. 0686 Listed.
- US - Pennsylvania RTK - Hazardous Substances: Listed substance**
 _Diethanolamine (111-42-2) Listed.

16. Other Information

Further information

HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings

Health: 2
 Flammability: 1
 Physical hazard: 0
 Personal protection: X

NFPA ratings

Health: 2
 Flammability: 1
 Instability: 0

Disclaimer

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MSDS Section Changes

First Aid Measures: Skin contact
 Ecological Information: Ecotoxicity