HEALTH HAZARDS IN THE NAIL SALON INDUSTRY

PRESENTED BY

DEPARTMENT OF LICENSING & REGULATORY AFFAIRS

MIOSHA CONSULTATION, EDUCATION & TRAINING DIVISION

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CHEMICAL HAZARDS - EXPOSURES

- CHEMICALS CAN BE INHALED INTO THE LUNGS.
  - PRIMARY ROUTE OF EMPLOYEE EXPOSURES
  - BREATHING IN VAPORS, DUSTS, OR MISTS FROM THE PRODUCTS/PROCESS USED
- ABSORBED INTO THE SKIN OR EYES
  - SPLASHES/SPILLS
  - USE OF **NO** GLOVES, EYES/FACE OR HAND PROTECTION = BAD WORK PRACTICES
- INGESTED INTO THE MOUTH
  - CONTAMINATED FOOD, DRINK, OR CIGARETTES
  - DIRTY HANDS – NO GLOVE USE/NO HAND WASHING
  - EATING AT THE WORK STATION

CHEMICAL HAZARDS - EXPOSURES

- FEDERAL GOVERNMENT (OSHA) & MIOSHA REGULATE EMPLOYEE CHEMICAL EXPOSURES
- ESTABLISHED CHEMICAL EXPOSURE LIMITS (PERMISSIBLE EXPOSURE LIMITS – PEL)
  - 8 HR. **T**IME-**W**EIGHTED **A**VERAGE LIMITS (**TWA** – LONG TERM/CHRONIC EXPOSURES)
  - 15 MINUTE **S**HORT **T**ERM **E**XPOSURE **L**IMITS (**STEL** – SHORT TERM/ACUTE EXPOSURES)
  - EXPOSURES CAN BE MEASURED IN PARTS OF CONTAMINANT PER MILLION PARTS OF AIR (ppm) OR MILLIGRAMS OF CONTAMINANT PER CUBIC METER OF AIR (mg/m^3)
- DESIGNED TO PROTECT EMPLOYEES
  - 40 HRS./WEEK FOR A WORKING LIFETIME – PROTECTS 95% WORKING POPULATION
  - CHRONIC (LONG TERM) EXPOSURES & ACUTE (SHORT TERM) EXPOSURES
  - CHEMICALS CAN HAVE BOTH EFFECTS
  - INDIVIDUAL SUSCEPTIBILITY – PEOPLE REACT DIFFERENTLY TO CHEMICAL EXPOSURES

HAZARDOUS CHEMICALS FOUND IN NAIL SALON PRODUCTS

- PRODUCTS INCLUDE: POLISHES, STRENGTHENERS, REMOVERS, & ARTIFICIAL NAIL LIQUIDS
- MULTIPLE CHEMICALS TYPICALLY FOUND IN EACH PRODUCT
- CHEMICAL EXPOSURES CAN CAUSE IRRITATING (RED SKIN/EYES) TO DEBILITATING (SENSITIZED/ALLERGIC/CANCER) EFFECTS
- AIR MONITORING CAN BE PERFORMED TO DETERMINE EMPLOYEE EXPOSURE LEVELS
- MIGHT BE POSSIBLE TO FIND LESS HAZARDOUS CHEMICALS TO USE/REPLACE THE HAZARDS

COMMON SALON CHEMICALS

- **ACETONE** – NAIL POLISH REMOVER
  - SYMPTOMS INCLUDE: HEADACHES; DIZZINESS; IRRITATED EYES, SKIN, & THROAT
  - EXPOSURE LIMIT = 750 ppm (PARTS PER MILLION) TWA (LONG TERM) & 1000 ppm STEL (SHORT TERM)
- **ACETONITRILE** – FINGERNAIL GLUE REMOVER
  - SYMPTOMS INCLUDE: IRRITATED NOSE & THROAT; BREATHING PROBLEMS; NAUSEA; VOMITING; WEAKNESS; & EXHAUSTION
  - EXPOSURE LIMIT = 40 ppm TWA & 60 ppm STEL
- **BUTYL ACETATE** – NAIL POLISH, NAIL POLISH REMOVER
  - SYMPTOMS INCLUDE: HEADACHES & IRRITATED EYES, SKIN, NOSE, MOUTH, & THROAT
  - EXPOSURE LIMIT (N-BUTYL ACETATE) = 150 ppm TWA & 200 ppm STEL

COMMON SALON CHEMICALS

- **DIBUTYL PHTHALATE (DBP)** – NAIL POLISH
  - SYMPTOMS INCLUDE: NAUSEA & IRRITATED EYES, SKIN, NOSE, MOUTH & THROAT, LONG-TERM EXPOSURES TO HIGH CONCENTRATIONS MAY CAUSE OTHER SERIOUS EFFECTS
  - EXPOSURE LIMITS = 5 mg/m^3 TWA
- **ETHYL ACETATE** – NAIL POLISH, NAIL POLISH REMOVER, FINGERNAIL GLUE
  - SYMPTOMS INCLUDE: IRRITATED EYES, STOMACH, SKIN, NOSE, & THROAT; HIGH CONCENTRATIONS CAN CAUSE FAINTING
  - EXPOSURE LIMITS = 400 ppm TWA
- **ETHYL METHACRYLATE (EMA)** – ARTIFICIAL NAIL LIQUID
  - SYMPTOMS INCLUDE: ASTHMA, IRRITATED EYES, SKIN, NOSE, AND MOUTH; DIFFICULTY CONCENTRATING.
  - MAY CAUSE SKIN ALLERGY/SENSITIZATION
  - EXPOSURES WHILE PREGNANT MAY AFFECT YOUR CHILD.
  - EXPOSURE LIMITS = **NO OSHA/MIOSHA LIMITS**

COMMON SALON CHEMICALS

- **FORMALDEHYDE** – NAIL POLISH, NAIL HARDENER
  - SYMPTOMS INCLUDE: DIFFICULTY BREATHING, INCLUDING COUGHING, ASTHMA-LIKE ATTACKS, & WHEEZING; ALLERGIC REACTIONS; IRRITATED EYES, SKIN, & THROAT
  - FORMALDEHYDE CAN CAUSE CANCER!
  - EXPOSURE LIMITS = 0.75 ppm TWA, 2 ppm STEL, 0.5 ppm ACTION LEVEL
- **ISOPROPYL ACETATE** – NAIL POLISH, NAIL POLISH REMOVER
  - SYMPTOMS INCLUDE: SLEEPINESS, & IRRITATED EYES, NOSE & THROAT
  - EXPOSURE LIMITS = 250 ppm TWA & 310 ppm STEL
- **METHACRYLIC ACID** – NAIL PRIMER
  - SYMPTOMS INCLUDE: SKIN BURNS & IRRITATED EYES, SKIN, NOSE, MOUTH, & THROAT
  - AT HIGHER CONCENTRATIONS, THIS CHEMICAL CAN CAUSE DIFFICULTY BREATHING
  - EXPOSURE LIMITS = 20 ppm TWA

COMMON SALON CHEMICALS

- **METHYL METHACRYLATE (MMA)** – ARTIFICIAL NAIL PRODUCTS, THOUGH BANNED FOR USE IN MANY STATES
  - SYMPTOMS INCLUDE: ASTHMA; IRRITATED EYES, SKIN, NOSE, & MOUTH; DIFFICULTY CONCENTRATING; LOSS OF SMELL
  - EXPOSURE LIMITS = 100 ppm TWA
- **TOLUENE** – NAIL POLISH, FINGERNAIL GLUE
  - SYMPTOMS INCLUDE: DRY/CRACKED SKIN; HEADACHES, DIZZINESS, & NUMBNESS; IRRITATED EYES, NOSE, THROAT, AND LUNGS; DAMAGE TO THE LIVER & KIDNEYS; HARM TO UNBORN CHILDREN DURING PREGNANCY
  - EXPOSURE LIMITS = 100 ppm TWA & 150 ppm STEL
- **QUARTERNARY AMMONIUM COMPOUNDS** – DISINFECTANTS
  - SYMPTOMS INCLUDE: IRRITATED SKIN & NOSE, MAY CAUSE ASTHMA
  - AVOID SKIN CONTACT WEAR GLOVES & EYE/FACE PROTECTION WHEN HANDLING
  - EXPOSURE LIMITS = **NO OSHA/MIOSHA LIMITS**

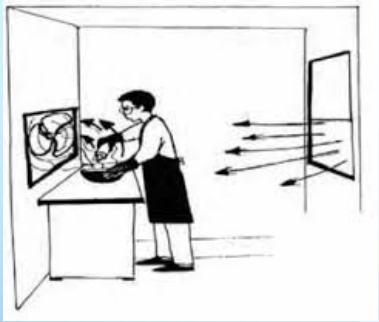
KNOW THE CHEMICALS YOU WORK WITH!

- PRODUCT LABELS
  - LIMITED INFO PROVIDED
  - MANUFACTURER/DISTRIBUTOR'S CONTACT INFO
- SAFETY DATA SHEETS (SDS - NEW)
  - NOT THE MATERIAL SAFETY DATA SHEET (MSDS - OLD)
  - MOST UP TO DATE INFORMATION
  - ALL INGREDIENTS LISTED!
  - DESCRIBES THE NECESSARY PERSONAL PROTECTIVE EQUIPMENT (PPE)
  - REQUIRED FOR ALL PRODUCTS USED IN SALON (HAZARD COMMUNICATION)

PROTECT YOUR HEALTH FROM CHEMICAL EXPOSURE

- CHOOSE SAFER PRODUCTS
  - CHEMICAL SUBSTITUTION – REPLACE HAZARDOUS CHEMICALS
  - 3-FREE (TOLUENE, FORMALDEHYDE, DIBUTYL PHTHALATE) – CONFIRM ON SDS
  - ACID-FREE – CONFIRM ON SDS
  - READ PRODUCT LABELS, FOLLOW MANUFACTURERS' INSTRUCTION
- VENTILATION
  - BEST CONTROL METHOD AVAILABLE
  - OPEN DOORS/WINDOWS
  - LEAVE THE BUILDING'S HVAC EXHAUST FAN RUNNING AT ALL TIMES
  - USE VENTILATED TABLES OR PORTABLE VENTILATION MACHINES TO CAPTURE CONTAMINANTS

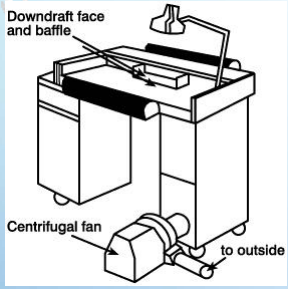
Good vs. Bad Ventilation



Good ventilation takes contaminants away.

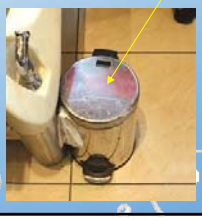
Bad or no ventilation leaves contaminants in the air to breath

VENTILATION OPTIONS



PROTECT YOUR HEALTH FROM CHEMICAL EXPOSURES

- USE SAFE WORK PRACTICES
  - STORE CHEMICALS IN SMALL SEALED BOTTLES – KEEP CLOSED WHEN NOT IN USE
  - USE METAL TRASH CANS WITH SELF-CLOSING LIDS TO DISPOSE OF CHEMICAL SOAKED COTTON
  - OR PUT SOAKED COTTON BALLS IN A SEALED BAG THEN TRASH
  - FOLLOW INSTRUCTIONS FOR PROPER DISPOSAL OF WASTE CHEMICALS
  - WASH HANDS BEFORE EATING, DRINKING, PUTTING ON COSMETICS OR SMOKING
  - GO OUTSIDE OFTEN FOR FRESH AIR
  - COVER FOOD AND DO NOT STORE AND EAT AT THE WORK STATION



PROTECT YOUR HEALTH FROM CHEMICAL EXPOSURES

- KEEP PRODUCTS OFF SKIN/OUT OF EYES
  - WEAR LONG SLEEVES OR CUFFS, ENSURE THE LAP IS COVERED – WEAR AN APRON
  - WASH HANDS BEFORE AND AFTER WORKING ON CLIENTS
    - BEFORE EATING, DRINKING, PUTTING ON COSMETICS OR SMOKING
    - AFTER HANDLING OR TRANSFERRING PRODUCTS
  - WEAR GOOGLES/SAFETY GLASSES AND APPROPRIATE GLOVES
    - WHEN HANDLING AND TRANSFERRING PRODUCTS
    - NITRILE GLOVES PROVIDE GOOD PROTECTION AGAINST MANY CHEMICALS
    - VINYL GLOVES WHEN WORKING WITH ACETONE
    - LATEX GLOVES CAN CAUSE ALLERGIES – DO NOT USE
    - REPLACE GLOVES WHEN TORN, CUT OR HOLES IN THEM

RESPIRATORY PROTECTION

- RESPIRATORY PROTECTION MAY BE NEEDED IF NO VENTILATION IS USED
- AIR MONITORING IS USED TO EVALUATE EMPLOYEE EXPOSURES
  - MIOSHA ON-SITE CONSULTATION – FREE
  - EMPLOYER'S INSURANCE CARRIER
  - PRIVATE INDUSTRIAL HYGIENE CONSULTANTS
- SOME EMPLOYEES WILL HAVE CHEMICAL EFFECTS BELOW THE LIMITS – INDIVIDUAL SUSCEPTIBILITY
- RESPIRATORS ARE DESIGNED FOR SPECIFIC CONTAMINANTS
  - DUSTS, POWDERS, VIRUSES, GERMS – FILTERING FACE-PIECE RESPIRATORS (DUST MASKS)
  - CHEMICAL GASES AND VAPORS – HALF-MASK RESPIRATOR W/ CARTRIDGES
  - ALL EMPLOYEES THAT WEAR RESPIRATORS NEED TRAINING ON THEM

RESPIRATORY PROTECTION

- FILTERING FACE-PIECE RESPIRATORS
- NEEDS TO BE NIOSH APPROVED AS A RESPIRATOR – 2 STRAPS NEEDED
- ALSO KNOWN AS A DUST MASK (APPROVED)
- PROTECTS AGAINST DUST, VIRUSES, AND GERMS
- USED WHEN BUFFING OR FILING ARTIFICIAL NAILS OR USING ACRYLIC POWDERS
- MUST HAVE TRAINING ON APPENDIX D OF THE RESPIRATORY PROTECTION STANDARD (PART 451)

RESPIRATORY PROTECTION
(NON-APPROVED)

Single strap mask

-These are non-approved respirators
-They do not provide any protection against gases, vapors, or dust/particulates
-These are not recommended for respiratory protection
-These protect against splashes

Surgical splash mask

Leaks contaminants

RESPIRATORY PROTECTION

- HALF-MASK ELASTOMERIC FACE-PIECE WITH ORGANIC VAPOR CARTRIDGES
- NIOSH APPROVED
- PROTECTS AGAINST GASES AND VAPORS (FORMALDEHYDE/TOLUENE)
- USED WHEN TRANSFERRING CHEMICALS INTO SMALLER BOTTLES
- SPILL CLEAN-UP
- EMPLOYER MUST DEVELOP A RESPIRATORY PROTECTION PROGRAM
- EMPLOYEES MUST BE FIT TESTED, TRAINED, BE MEDICALLY EVALUATED
- RESPIRATOR CARTRIDGES REQUIRE A CHANGE-OUT SCHEDULE
- SEE MIOSHA PART 451 – RESPIRATORY PROTECTION

ERGONOMICS

- CAUSES ACHES AND PAINS IN THE NECK, BACK, SHOULDERS, ARMS, WRIST & FINGERS
- RELATED TO AWKWARD POSTURE, REPETITIVE MOTION & FORCEFUL EXERTION (RISK FACTORS)
  - AWKWARD POSTURE = BENDING, TWISTING, SQUATTING, KNEELING, HANDS OVER HEAD
  - REPETITIVE MOTION = FILING/BUFFING NAILS
  - FORCEFUL EXERTION = HOLDING TOOLS TIGHTLY

ERGONOMICS

- MAINTAIN A NEUTRAL POSTURE, USE ADEQUATE LIGHTING, DO NOT REST ELBOWS, WRISTS, & ARMS ON HARD SURFACES (USE A PAD OR SOFT TOWEL)

Bad posture

Good posture

ERGONOMICS – REDUCE THE HAZARDS

- USE AN ADJUSTABLE CHAIR – FEET FLAT ON FLOOR, USE A FOOTREST IF FEET NOT ON THE FLOOR
- ADJUST THE LIGHTING – SEE BETTER WITHOUT BENDING OVER
- RAISE THE CLIENT'S HAND OR FOOT – SO YOU DO NOT BEND OVER AS MUCH
- USE SAFETY GLASSES WITH MAGNIFYING LENSES – HELPS TO SEE BETTER AND ELIMINATE BENDING
- USE A FOAM PAD OR TOWEL - SOFT RESTING PLACE FOR YOUR HANDS, ARMS, WRISTS, & ELBOWS
- MAKE TOOL HANDLES LARGER – WRAP WITH SOFT PADS TO ENLARGE AND GRIP EASIER
- TAKE FREQUENT BREAKS – CHANGE BODY POSITIONS, GIVE IT A REST
- PACE YOUR WORK – FAST WORK = TENSE BODY = MUSCLE PAIN
- DO GENTLE STRETCHING EXERCISES – CHECK WITH YOUR DOCTOR, TARGET HANDS, WRISTS, ARMS, SHOULDER, NECK

BIOLOGICAL HAZARDS

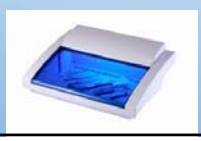
- INCLUDE BACTERIA, FUNGI, VIRUSES (SUCH AS BLOODBORNE PATHOGENS)
- INFECTIOUS AGENTS/VIRUSES INCLUDE HEPATITIS B, HEPATITIS C & HUMAN IMMUNODEFICIENCY VIRUS (HIV)
  - INFECTED BLOOD FROM COWORKER OR CLIENT (TREAT ALL AS IF INFECTED)
  - FUNGAL INFECTIONS OF THE NAILS AND FEET BY TOUCHING CLIENT'S INFECTED SKIN
  - FUNGAL INFECTIONS ALSO OCCUR BY USING EQUIPMENT THAT HAS NOT BEEN DISINFECTED

PREVENT BIOLOGICAL HAZARDS

- AVOID TOUCHING ANY BLOOD AND BODY FLUIDS
- WEAR GLOVES AND AVOID CLIENTS WITH CUTS, SORES, BLISTERS OR VISIBLY INFECTED SKIN
- THROW AWAY DISPOSABLE GLOVES IMMEDIATELY AFTER USE
- ALWAYS WASH YOUR HANDS WITH SOAP AND WATER – BEFORE & AFTER EACH CLIENT
- BANDAGE OPEN CUTS OR BROKEN SKIN TO PREVENT CONTACT WITH
- IF AN INDIVIDUAL IS BLEEDING, DO NOT TOUCH THE BLOOD, HAND THE INDIVIDUAL A COTTON BALL OR TISSUE AND HAVE THEM STOP THE BLOOD FLOW THEN HAVE THEM THROW IT IN THE TRASH
- CONSIDER GETTING IMMUNIZED AGAINST HEPATITIS B
- CLEAN & DISINFECT TOOLS AFTER EACH CLIENT ACCORDING TO THE POLICIES OF THE STATE'S COSMETOLOGY BOARD

PREVENT BIOLOGICAL HAZARDS

- DISINFECTION AND CLEANING OF TOOLS
  - ALWAYS WEAR THE CORRECT GLOVES WHILE CLEANING AND DISINFECTING
  - WASH TOOLS WITH SOAP AND WATER, USE A SCRUB IF NEEDED
  - SOAK TOOLS IN AN EPA-REGISTERED DISINFECTANT FOR 10 – 30 MINUTES
  - FOLLOW THE MANUFACTURER'S DIRECTIONS!
  - RINSE THE TOOLS IN CLEAN WATER
  - DRY TOOLS WITH A CLEAN CLOTH
  - STORE ALL DISINFECTED TOOLS IN A CLEAN, COVERED AREA. ONLY USE ULTRAVIOLET (UV) SANITIZING BOXES FOR STORING CLEAN AND DISINFECTED REUSABLE METAL TOOLS
  - UV BOXES DO NOT DISINFECT TOOLS
  - DISINFECT FOOT BASINS & SPAS AFTER EACH CLIENT AND AT THE END OF THE DAY – FOLLOW COSMETOLOGY BOARD RULES



ADDITIONAL RESOURCES

- **NAIL TECHNICIANS' HEALTH AND WORKPLACE EXPOSURE CONTROLS**
  - NIOSH WORKPLACE SAFETY AND HEALTH TOPICS
  - http://www.cdc.gov/niosh/topics/manicure/?s_cid=3ni7d2fb082020111130am
- **CONTROLLING CHEMICAL HAZARDS DURING THE APPLICATION OF ARTIFICIAL FINGERNAILS**
  - NIOSH (PUBLICATION NO. 99-112)
  - http://www.cdc.gov/niosh/docs/99-112/
- **TIPS ON WORKER SAFETY**
  - LABOR OCCUPATIONAL HEALTH PROGRAM (LOHP) & CALIFORNIA HEALTHY NAIL SALON COLLABORATIVE
  - ENGLISH & VIETNAMESE – GENERAL TIPS FOR STAYING SAFE AND HEALTHY
- **SAFETY AND HEALTH HAZARDS IN NAIL SALONS**
  - OREGON OSHA FACT SHEET PLUS
  - http:www.orosha.org/pdf/pubs/fact_sheets/fs28.pdf
- **HOW TO BE SAFE AT WORK**
  - OREGON HEALTHY NAIL SALON COLLABORATIVE
  - http://www.cbs.state.or.us/osha/pdf/pubs/4783e.pdf

ADDITIONAL RESOURCES

- **SUMMARY OF DATA & FINDINGS FROM TESTING OF A LIMITED NUMBER OF NAIL PRODUCTS**
  - CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY, DEPT. OF TOXIC SUBSTANCE CONTROL
  - http://www.dtsc.ca.gov/PollutionPrevention/upload/NailSalon_Final.pdf
- **UNDERSTANDING THE TOXIC TRIO: PROTECTING YOURSELF AT WORK**
  - CALIFORNIA HEALTHY NAIL SALON COLLABORATIVE
  - http://www.cahealthynailsalon.org/wp-content/uploads/2010/07/Toxic_Trio_EN_March2012.pdf
- **SAFE NAIL SALON TRAINING**
  - BOSTON PUBLIC HEALTH COMMISSION
  - http://www.bphc.org/programs/cib/environmentalhealth/environmentalhazards/safenailsalons/Forms_Documents/2010Safe_Nail_Salon_Training-English.pptx

ANY QUESTIONS?