

May 25, 2018

## Required Testing UPDATE

The intent of this technical bulletin is to release detailed requirements and limits for the quality assurance tests that must be performed by Safety Compliance Facilities (SCFs) in accordance with the information provided in the Medical Marijuana Facilities Licensing Act (MMFLA) and the Emergency Rules published December 4, 2017.

**Chemical Residue Testing includes:** Pesticides, Fungicides and Insecticides. SCFs must perform presence/absence testing on all samples for the banned pesticide ingredients provided in Table 1 at a minimum. Levels detected above the provided detection limit will be considered a failed sample.

In accordance with Emergency Rule 30(3), marijuana product is prohibited from being retested when an original test for pesticides failed pursuant to the Emergency Rules. If the amount of pesticides is not permissible by the department, the marijuana product is ineligible for retesting and the product must be destroyed.

**Table 1.**

Analyte	Chemical Abstract Services (CAS) Registry number	Detection Limit (ppm)
Abamectin	71751-41-2	0.5
Acephate	30560-19-1	0.4
Acequinocyl	57960-19-7	2
Acetamiprid	135410-20-7	0.2
Aldicarb	116-06-3	0.4
Azoxystrobin	131860-33-8	0.2
Bifenazate	149877-41-8	0.2
Bifenthrin	82657-04-3	0.2
Boscalid	188425-85-6	0.4
Carbaryl	63-25-2	0.2
Carbofuran	1563-66-2	0.2
Chlorantraniliprole	500008-45-7	0.2
Chlorfenapyr	122453-73-0	1
Chlorpyrifos	2921-88-2	0.2
Clofentezine	74115-24-5	0.2
Cyfluthrin	68359-37-5	1
Cypermethrin	52315-07-8	1
Daminozide	1596-84-5	1
DDVP (Dichlorvos)	62-73-7	0.1

May 25, 2018

Diazinon	333-41-5	0.2
Dimethoate	60-51-5	0.2
Ethoprophos	13194-48-4	0.2
Etofenprox	80844-07-1	0.4
Etoxazole	153233-91-1	0.2
Fenoxycarb	72490-01-8	0.2
Fenpyroximate	134098-61-6	0.4
Fipronil	120068-37-3	0.4
Fonicamid	158062-67-0	1
Fludioxonil	131341-86-1	0.4
Hexythiazox	78587-05-0	1
Imazalil	35554-44-0	0.2
Imidacloprid	138261-41-3	0.4
Kresoxim-methyl	143390-89-0	0.4
Malathion	121-75-5	0.2
Metalaxyl	57837-19-1	0.2
Methiocarb	2032-65-7	0.2
Methomyl	16752-77-5	0.4
Methyl parathion	298-00-0	0.2
MGK-264	113-48-4	0.2
Myclobutanil	88671-89-0	0.2
Naled	300-76-5	0.5
Oxamyl	23135-22-0	1
Paclobutrazol	76738-62-0	0.4
Permethrins*	52645-53-1	0.2
Prallethrin	23031-36-9	0.2
Phosmet	732-11-6	0.2
Piperonyl_butoxide	51-03-6	2
Propiconazole	60207-90-1	0.4
Propoxur	114-26-1	0.2
Pyridaben	96489-71-3	0.2
Pyrethrins+	8003-34-7	1
Spinosad	168316-95-8	0.2
Spiromesifen	283594-90-1	0.2
Spirotetramat	203313-25-1	0.2
Spiroxamine	118134-30-8	0.4
Tebuconazole	80443-41-0	0.4
Thiacloprid	111988-49-9	0.2

May 25, 2018

<b>Thiamethoxam</b>	<b>153719-23-4</b>	<b>0.2</b>
<b>Trifloxystrobin</b>	<b>141517-21-7</b>	<b>0.2</b>

\* Permethrins should be measured as cumulative residue of cis- and trans-permethrin isomers (CAS numbers 54774-45-7 and 51877-74-8).

+ Pyrethrins should be measured as the cumulative residues of pyrethrin 1, cinerin 1 and jasmolin 1 (CAS numbers 121-21-1, 25402-06-6, and 4466-14-2 respectively).

**Please note:** Scant research exists to establish toxicity-based tolerances for pesticide residues in cannabis products. The variety of uses and exposure routes is too great. Not enough information exists about the pyrolysis products of target pesticides relevant to cannabis products when smoked. The limits below are based on the best available data and a reasonable Level of Quantitation (LOQ) SCFs should be able to achieve. Once SCFs are up and running, the Bureau of Medical Marijuana Regulation (BMMR) will review the laboratory data including individual SCF LOQs and sample results to review the current action levels and make adjustments as necessary to protect the health of the public.

**Residual Solvent Testing (Volatile Organic Compounds):**

SCFs must test samples for the residual solvents provided in the list below at a minimum.

Levels detected above the detection limit will be considered a failed sample.

<b>Residual Solvent</b>	<b>CAS No.</b>	<b>Detection Limit for Medical Cannabis Goods Meant for Inhalation (ppm)</b>	<b>Detection Limit for All Other Medical Cannabis-Infused Goods (ppm)</b>
<b>1,2-Dichloroethane</b>	<b>107-06-2</b>	<b>2</b>	<b>5</b>
<b>Acetone</b>	<b>67-64-1</b>	<b>750</b>	<b>5000</b>
<b>Acetonitrile</b>	<b>75-05-8</b>	<b>60</b>	<b>410</b>
<b>Benzene</b>	<b>71-43-2</b>	<b>1</b>	<b>2</b>
<b>Butane</b>	<b>106-97-8</b>	<b>800</b>	<b>5000</b>
<b>Chloroform</b>	<b>67-66-3</b>	<b>2</b>	<b>60</b>

May 25, 2018

Ethanol	64-17-5	1000	5000
Ethyl acetate	141-78-6	400	5000
Ethyl ether	60-29-7	500	5000
Ethylene oxide	75-21-8	5	50
Heptane	142-82-5	500	5000
Hexane	110-54-3	50	290
Isopropyl alcohol	67-63-0	500	5000
Methanol	67-56-1	250	3000
Methylene chloride	75-09-2	125	600
Naphtha	8030-30-6	400	400
Pentane	109-66-0	750	5000
Petroleum ether	8032-32-4	400	400
Propane	74-98-6	2100	5000
Trichloroethylene	79-01-6	25	80
Toluene	108-88-3	150	890

May 25, 2018

<b>Total xylenes (ortho-, meta-, para-)</b>	<b>1330-20-7</b>	<b>150</b>	<b>2170</b>
---	------------------	------------	-------------

## Heavy Metals

For the purposes of the heavy metal test, a sample of marihuana is deemed to have passed if it meets the following standards:

<b>Metal</b>	<b>Natural Health Products Acceptable limits for finished products Acceptable Limits ug/kg =(X)</b>	<b>Acceptable limits for finished products ug/g (ppm)</b>
Inorganic Arsenic	<0.14	0.98
Cadmium	<0.09	0.63
Lead	<0.29	2.0
Mercury	<0.29	2.0

The acceptable limit for finished products is calculated using the following equation:

$$X \text{ (ug/kg)} \times 70 \text{ kg} \times 1/10 \text{ g} = Y \text{ ug/g (ppm)}$$

The adult body weight average is 70 kg and a maximum daily consumption of 10 grams (g) of marihuana product.

## Terpenes

Currently BMMR does not have recommendations for Terpene testing.

## Moisture Content

Moisture Content of dry material (crude cannabis after packaging): Not more than 15% .<sup>1</sup>

## Water Activity

Water activity ranges from 0 to 1, and below Aw 0.6 no growth can occur. Water activity levels must be below Aw 0.65 to ensure the absence of microbial growth on cannabis products.

<sup>1</sup>. *Cannabis Inflorescence: Standards of Identity, Analysis, and Quality Control monograph (BMC 2010)*

*This technical bulletin does not constitute legal advice and is subject to change. It is intended to provide a technical clarification only to the Department of Licensing and Regulatory Affairs' Emergency Rules which were promulgated on December 4, 2017. Licensees are encouraged to seek legal counsel to ensure their operations comply with the Medical Marihuana Facilities Licensing Act and associated Emergency Rules.*

May 25, 2018

---

A complete copy of the Emergency Administrative Rules can be found [here](#)

More information on the BMMR can be found at the bureau's [website](#)

For more information about LARA, please visit [www.michigan.gov/lara](http://www.michigan.gov/lara)

Follow us on Twitter [www.twitter.com/michiganLARA](https://www.twitter.com/michiganLARA)

“Like” us on Facebook or find us on YouTube: [www.youtube.com/user/michiganLARA](http://www.youtube.com/user/michiganLARA)