1. Identification

1.1. Product identifier

Trade name: Mepron®

1.2. Recommended use of the chemical and restrictions on use

Relevant applications identified: Feed additive

1.3. Details of the supplier of the safety data sheet

Company: Evonik Corporation USA
299 Jefferson Road
Parsippany, NJ 07054-0677
USA

Telephone: 973-929-8000

Telefax: 973-929-8040

Email address: Product-Regulatory-Services@Evonik.com

1.4. 24 HOUR EMERGENCY TELEPHONE NUMBERS:

CHEMTREC - US & CANADA: 800-424-9300

CHEMTREC MEXICO: 01-800-681-9531

CHEMTREC INTERNATIONAL: +1 703-527-3887 (collect calls accepted)

Product Regulatory Services: 973-929-8060

2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation 29CFR 1910.1200

Remarks: Not a hazardous substance or mixture.

2.2. Label elements

Statutory basis: Classification according to Regulation 29CFR 1910.1200

Remarks: Not a hazardous substance or mixture.

Contains Starch, Ethylcellulose, Silicic acid, aluminum sodium salt, Sodium stearate, DL-Methionine

The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity: 99.5%

2.3. Other hazards

No hazards resulting from the material as supplied.

Inhalation: No hazard expected in normal use.

Skin: No hazard expected in normal use.

Eyes: No hazard expected in normal use.

Ingestion: No hazard expected in normal use.
3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS-No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• DL-Methionine</td>
<td>59-51-8</td>
<td>Not a hazardous substance or mixture.</td>
</tr>
<tr>
<td>• Starch</td>
<td>9005-25-8</td>
<td>Not a hazardous substance or mixture.</td>
</tr>
<tr>
<td>• Ethylcellulose</td>
<td>9004-57-3</td>
<td>Not a hazardous substance or mixture.</td>
</tr>
<tr>
<td>• Silicic acid, aluminum sodium salt</td>
<td>1344-00-9</td>
<td>Not a hazardous substance or mixture.</td>
</tr>
<tr>
<td>• Sodium stearate</td>
<td>822-16-2</td>
<td>Not a hazardous substance or mixture.</td>
</tr>
</tbody>
</table>

Other information
This material is classified as not hazardous under OSHA regulations. This product is intended for FDA regulated uses only.

4. First aid measures

4.1. Description of first aid measures

Inhalation
In case product dust is released:
Possible discomfort: cough, sneezing
Move victims into fresh air.

Skin contact
No hazards which require special first aid measures.

Eye contact
Possible discomfort is due to foreign substance effect.
Rinse thoroughly with plenty of water keeping eyelid open.
In case of persistent discomfort: Consult an ophthalmologist.

Ingestion
Have the mouth rinsed with water.
After absorbing large amounts of substance
Consult a physician.

4.2. Most important symptoms and effects, both acute and delayed

4.3. Indication of any immediate medical attention and special treatment needed
After absorbing large amounts of substance:
Possible discomfort: nausea, vomiting
Treatment of symptoms, administration of activated charcoal, acceleration of the gastro-intestinal tract.

5. Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media: Water, Foam, mist
Unsuitable extinguishing media: Carbon dioxide (CO2)

5.2. Special hazards arising from the substance or mixture

May be released in case of fire: hydrocyanic acid, flammable smouldering gases, NOX, sulphur oxides, carbon monoxide, carbon dioxide.

5.3. Advice for firefighters

Contaminated fire-extinguishing water must be disposed of in accordance with the regulations issued by the appropriate local authorities.
Fire residues should be disposed of in accordance with the regulations.
In the event of fire, wear self-contained breathing apparatus.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protective equipment. Keep unauthorized persons away.

6.2. Environmental precautions

Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

6.3. Methods and material for containment and cleaning up

Absorb mechanically avoiding production of dust.

7. Handling and storage

7.1. Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion

take precautionary measures against static charges, keep away from sources of ignition.
Avoid dust formation.
Combustible

Storage

Store in a cool and shaded area.
Keep containers dry and tightly closed to avoid moisture absorption and contamination.

German storage class

11 - Combustible Solids

Dust explosion class

ST1
Method: VDI Guideline 2263 sheet 1
Maximum rate of pressure rise: 88 bar/s
Standardized max. rate of pressure increase, KSt: 85 bar·m/s
Related to substance: DL-Methionine
8. Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Type of Exposure</th>
<th>Control Parameters</th>
<th>Time Weighted Average (TWA): (ACGIH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respirable fraction</td>
<td>3 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIOSH method 0500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIOSH method 0600</td>
<td></td>
</tr>
<tr>
<td>Inhalable particulate</td>
<td>10 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Total dust</td>
<td>15 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Respirable fraction</td>
<td>5 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIOSH method 0500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIOSH method 0600</td>
<td></td>
</tr>
</tbody>
</table>

DNEL/DMEL values

Remarks: No substance-related safety assessment is necessary / has been conducted for this product.

PNEC values

Remarks: No substance-related safety assessment is necessary / has been conducted for this product.

8.2. Exposure controls

Engineering measures

Ensure suitable suction/aeration at the work place and with operational machinery. Take precautionary measures against static discharges. Earthing of equipment.

Personal protective equipment

Respiratory protection

A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH’s “Respirator Decision Logic” may be useful in determining the suitability of various types of respirators.

Hand protection

Wear protective gloves made of the following materials: rubber or plastics. Change protective gloves regularly.

Eye protection

Safety glasses with side-shields
If dust occurs: basket-shaped glasses

Skin and body protection

No special protective equipment required.
Hygiene measures
Wash face and/or hands before break and end of work.
Cleanse and apply cream to skin after work.

Protective measures
Handle in accordance with good industrial hygiene and safety practice.
If there is the possibility of skin/eye contact, the indicated hand/eye/body protection should be used.

9. Physical and chemical properties
9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>solid</td>
</tr>
<tr>
<td>Colour</td>
<td>white to light brown</td>
</tr>
<tr>
<td>Form</td>
<td>solid</td>
</tr>
<tr>
<td>Odour</td>
<td>characteristic</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>not determined</td>
</tr>
<tr>
<td>pH</td>
<td>not determined</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>281 °C</td>
</tr>
<tr>
<td>Boiling point/range</td>
<td>n.a.</td>
</tr>
<tr>
<td>Flash point</td>
<td>not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not relevant</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>not highly flammable</td>
</tr>
<tr>
<td>Method</td>
<td>UN method N.1</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>33.5 g/l (25 °C)</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>log Pow: -1.87</td>
</tr>
<tr>
<td>TG (thermal gravimetric analysis)</td>
<td></td>
</tr>
<tr>
<td>Thermal decomposition</td>
<td>215 °C</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>not applicable</td>
</tr>
</tbody>
</table>
9.2. Other information

Explosiveness  
not to be expected, given the composition employed

Bulk density  
600 - 700 kg/m³

Minimum ignition energy  
> 10 mJ  (140 °C)

Classification: Normal combustibility

Method: VDI Guideline 2263 sheet 1

Mean grain size: 48 µm

Sieve fraction

Comparable product

Without inductance

Metal corrosion  
no data available

Burning number  
BZ 3 - local burning or smouldering with little or no spreading.

Method: Combustibility test in accordance with VDI 2263

10. Stability and reactivity

10.1. Reactivity

No further information available

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions

Dust can form an explosive mixture in air.

10.4. Conditions to avoid

See chapter

7.2. Conditions for safe storage, including any incompatibilities

10.5. Incompatible materials

10.6. Hazardous decomposition products

No hazardous decomposition products known.

The information given above refers to:

DL-Methionine

11. Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity  
NOEL Rat: 10000 mg/kg

Test substance: DL-Methionine

Acute inhalation toxicity  
NOAEL Rat: 5.25 mg/l / 4 h

Method: OECD Test Guideline 403

Test substance: DL-Methionine
Acute dermal toxicity  
no data available

Skin irritation  
Rabbit: 500 mg / 4 h  
No skin irritation  
Method: OECD Guide-line 404  
Test substance: DL-Methionine

Eye irritation  
Rabbit: 100 mg  
No eye irritation  
Method: OECD Test Guideline 405  
Test substance: DL-Methionine

Sensitization  
Buehler Test guinea pig: Does not cause skin sensitisation.  
Method: OECD Test Guideline 406  
Test substance: DL-Methionine

Repeated dose toxicity  
Oral Rat  
Testing period: 9 month  
NOAEL: 700 mg/kg  
Method: literature  
Test substance: DL-Methionine  
Reversible effects during the application period on liver, spleen, pancreas,

Assessment of STOT single exposure  
Assessment: no data available

Assessment of STOT repeat exposure  
Assessment: no data available

Risk of aspiration toxicity  
no data available

Gentoxicity in vitro  
Microorganisms, cell cultures  
none mutagenic / genotoxic effects  
Method: literature  
Test substance: DL-Methionine  
Ames test Salmonella typhimurium negative  
Method: OECD 471  
Test substance: DL-Methionine

Carcinogenicity  
no data available

Toxicity to reproduction  
1 generation pharyngal probe Rat: in maternally non-toxic doses  
NOEL (No Observed Effect Level) of parents: 300 mg/kg  
NOEL F1: 300 mg/kg  
Method: OECD Test Guideline 415  
Test substance: DL-Methionine

Human experience  
Side-effects were observed in the event of higher dosage (10 g)  
tested substance:  
DL-Methionine  
gastro-intestinal symptoms: nausea, vomiting  
tested substance:  
DL-Methionine
Toxicological information on components

**DL-Methionine**

**Acute oral toxicity**
LD50 Rat: > 10000 mg/kg
Method: literature
No signs of toxicity occurred

**Acute inhalation toxicity**
LC0 Rat (male/female): > 5.25 mg/l / 4 h
Method: OECD Test Guideline 403
limit test (maximum concentration attainable in experiments) - No deaths occurred.

**Acute dermal toxicity**
Assessment: no data available

**skin irritation**
Rabbit: 500 mg / 4 h
No skin irritation
Method: OECD Test Guideline 404

**Eye irritation**
Rabbit: 100 mg
No eye irritation
Method: OECD Test Guideline 405

**Sensitization**
Buehler Test Guinea pig: Does not cause skin sensitisation.
Method: OECD Test Guideline 406

**Repeated dose toxicity**
Oral Rat
Testing period: 9 month
NOAEL: 700 mg/kg
Method: literature
Reversible effects during the application period on liver, spleen, pancreas,

**Gentoxicity in vitro**
Microorganisms, cell cultures
none mutagenic / genotoxic effects
Method: literature

Ames test Salmonella typhimurium
negative
Method: OECD TG 471

**Toxicity to reproduction**
1 generation pharyngal probe Rat: in maternally non-toxic doses
NOEL (No Observed Effect) 300 mg/kg
Level of parents:
NOEL F1: 300 mg/kg
Method: OECD Test Guideline 415

**Human experience**
gastro-intestinal symptoms: nausea, vomiting
Side-effects were observed in the event of higher dosage (10 g)

---

**12. Ecological information**

**12.1. Toxicity**

**Toxicity to fish**
LC50 (Brachydanio rerio): > 3200 mg/l / 96 h
Test substance: DL-Methionine
Method: OECD 203

NOEC (Brachydanio rerio): 3200 mg/l / 96 h
Test substance: DL-Methionine
Method: OECD 203

Toxicity in aquatic invertebrates
NOEC Daphnia magna: 220 mg/l / 48 h
Test substance: DL-Methionine
Method: OECD TG 202

EC50 Daphnia magna: 324 mg/l / 48 h
Test substance: DL-Methionine
Method: OECD TG 202

Toxicity to algae
static test Desmodesmus subspicatus: > 1000 mg/l / 72 h
End point: Biomass
Analytical monitoring: yes
Test substance: DL-Methionine
Method: OECD TG 201

static test Desmodesmus subspicatus: > 1000 mg/l / 72 h
End point: growth rate
Analytical monitoring: yes
Test substance: DL-Methionine
Method: OECD TG 201

Toxicity to bacteria
EC 10 Pseudomonas putida: 2000 mg/l / 18 h
Test substance: DL-Methionine
Method: UBA method

12.2. Persistence and degradability

Biodegradability
Result: rapidly biodegradable
Test substance: DL-Methionine
Method: OECD TG 301 A

Biochemical Oxygen Demand (BOD)
480 mg/g
Concentration: (BOD5)
Test substance: DL-Methionine

12.3. Bioaccumulative potential

Bioaccumulation
Test substance: DL-Methionine
low
log Pow: see chapter 9

12.4. Mobility in soil

Mobility
No data available

12.5. Other adverse effects

Further Information
No further information available
13. Disposal considerations

13.1. Waste treatment methods

Product
Waste must be disposed of in accordance with federal, provincial and local regulations.
Offer rinsed packaging material to local recycling facilities.

Uncleaned packaging
Packaging material should be recycled or disposed of in accordance with federal, state and local regulations.

14. Transport information

Not dangerous according to transport regulations.

14.1. UN number: --
14.2. UN proper shipping name: --
14.3. Transport hazard class(es): --
14.4. Packing group: --
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: Yes
   Not dangerous according to transport regulations.

15. Regulatory information

US Federal Regulations

OSHA
If listed below, chemical specific standards apply to the product or components:

- None listed

Clean Air Act Section (112)
If listed below, components present at or above the de minimus level are hazardous air pollutants:

- None listed

CERCLA Reportable Quantities
If listed below, a reportable quantity (RQ) applies to the product based on the percent of the named component:

- None listed

SARA Title III Section 311/312 Hazard Categories
The product meets the criteria only for the listed hazard classes:

- No SARA Hazards
SARA Title III Section 313 Reportable Substances
If listed below, components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

- None listed

Toxic Substances Control Act (TSCA)
If listed below, non-proprietary substances are subject to export notification under Section 12 (b) of TSCA:

- None listed

State Regulations

California Proposition 65
A warning under the California Drinking Water Act is required only if listed below:

- None listed

An employer using HMIS/NFPA labeling must through training ensure that its employees are fully aware of the hazards of the chemicals used.

HMIS Ratings

Health : 0
Flammability : 1
Physical Hazard : 0

16. Other information

Further information
Revision date 04/22/2015

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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### Legend

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>American Chemistry Council</td>
</tr>
<tr>
<td>ACGIH</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>ACS</td>
<td>Advisory Committee on Sustainability</td>
</tr>
<tr>
<td>ADI</td>
<td>Acceptable Daily Intake</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>ATP</td>
<td>Adaptation to Technical Progress</td>
</tr>
<tr>
<td>BCF</td>
<td>Bioconcentration factor</td>
</tr>
<tr>
<td>BOD</td>
<td>Biochemical oxygen demand</td>
</tr>
<tr>
<td>c.c.</td>
<td>closed cup</td>
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<td>CAO</td>
<td>Cargo Aircraft Only</td>
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<td>Carc</td>
<td>Carcinogen</td>
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<td>CAS</td>
<td>Chemical Abstract Services</td>
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<td>Canadian Environmental Protection Act</td>
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<td>CERCLA</td>
<td>Comprehensive Environmental Response – Compensation and Liability Act</td>
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<td>Code of Federal Regulations</td>
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<td>CMR</td>
<td>carcinogenic-mutagenic-toxic for reproduction</td>
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<td>Chemical oxygen demand</td>
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<tr>
<td>DIN</td>
<td>German Institute for Standardization</td>
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<tr>
<td>DMEL</td>
<td>Derived minimum effect level</td>
</tr>
<tr>
<td>DNEL</td>
<td>Derived no effect level</td>
</tr>
<tr>
<td>DOT</td>
<td>Department of Transportation</td>
</tr>
<tr>
<td>EC50</td>
<td>half maximal effective concentration</td>
</tr>
<tr>
<td>EPA</td>
<td>Environmental Protection Agency</td>
</tr>
<tr>
<td>ErC50</td>
<td>Reduction of Growth Rate</td>
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<tr>
<td>ERG</td>
<td>Emergency Response Guide Book</td>
</tr>
<tr>
<td>FDA</td>
<td>Food and Drug Administration</td>
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<tr>
<td>GHS</td>
<td>Globally Harmonized System of Classification and Labelling of Chemicals (GHS)</td>
</tr>
<tr>
<td>GLP</td>
<td>Good Laboratory Practice</td>
</tr>
<tr>
<td>GMO</td>
<td>Genetic Modified Organism</td>
</tr>
<tr>
<td>HCS</td>
<td>Hazard Communication Standard</td>
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<tr>
<td>HMIS</td>
<td>Hazardous Materials Identification System</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IBC</td>
<td>Intermediate Bulk Container</td>
</tr>
<tr>
<td>ICAO-TI</td>
<td>International Civil Aviation Organization- Technical Instructions</td>
</tr>
<tr>
<td>ICCA</td>
<td>International Council of Chemical Association</td>
</tr>
<tr>
<td>ID</td>
<td>Identification number</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods</td>
</tr>
<tr>
<td>IUPAC</td>
<td>International Union of Pure and Applied Chemistry</td>
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<tr>
<td>ISO</td>
<td>International Organization For Standardization</td>
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<tr>
<td>LC50</td>
<td>50 % Lethal Concentration</td>
</tr>
<tr>
<td>LD50</td>
<td>50 % Lethal Dose</td>
</tr>
<tr>
<td>L(E)C50</td>
<td>LC50 or EC50</td>
</tr>
<tr>
<td>LOAEL</td>
<td>Lowest observed adverse effect level</td>
</tr>
<tr>
<td>LOEL</td>
<td>Lowest observed effect level</td>
</tr>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships</td>
</tr>
<tr>
<td>NPAA</td>
<td>National Fire Protection Association</td>
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<td>NOAEL</td>
<td>No observed adverse effect level</td>
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<tr>
<td>NOEC</td>
<td>no observed effect concentration</td>
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<tr>
<td>NOEL</td>
<td>no observed effect level</td>
</tr>
<tr>
<td>o. c.</td>
<td>open cup</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
</tr>
<tr>
<td>OEL</td>
<td>Occupational Exposure Limit</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent, bioaccumulative, toxic</td>
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<tr>
<td>PEC</td>
<td>Predicted effect concentration</td>
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<tr>
<td>PNEC</td>
<td>Predicted no effect concentration</td>
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<tr>
<td>RG</td>
<td>Reportable Quantity</td>
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<tr>
<td>SDS</td>
<td>Safety Data Sheet</td>
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<tr>
<td>STOT</td>
<td>Specific Target Organ Toxicity</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>vPvB</td>
<td>very persistent, very bioaccumulative</td>
</tr>
</tbody>
</table>
voc  volatile organic compounds
WHMIS  Workplace Hazardous Materials Information System
WHO  World Health Organization