

## SECTION 1: Identification

**Product Name:** DL-Methionine  
**Material Use:** Animal Feed  
**Distributed by:** Pestell Minerals & Ingredients, 141 Hamilton Road  
 New Hamburg, ON - N3A 2H1 Canada.  
 Phone: 519-662-2877  
 Fax: 519-662-4234  
 www.pestell.com  
**Emergency Response:** CANUTEC: (24 Hrs) 613:996-6666

## SECTION 2: Hazards identification

### GHS classification:

<b>Physical hazards</b>	Explosives	Not applicable
	Flammable gas.	Not applicable
	Flammable aerosol.	Not applicable
	Oxidizing gases	Not applicable
	Gases under pressure	Not applicable
	Flammable liquids	Not applicable
	Flammable solid.	Classification not possible
	Self-reactive substances and mixtures	Not applicable
	Pyrophoric liquids	Not applicable
	Pyrophoric solids	Not classified
	Self-heating substances and mixtures	Classification not possible
	Substances and mixtures, which in contact with water, emit flammable gases	Not applicable
	Oxidizing liquids	Not applicable
	Oxidizing solids	Not applicable
	Organic peroxides	Not applicable
	Corrosive to metals	Classification not possible
<b>Health hazards</b>	Acute toxicity (Oral)	Not classified
	Acute toxicity (Dermal)	Classification not possible
	Acute toxicity (Inhalation - gas)	Not applicable
	Acute toxicity (Inhalation - vapour)	Classification not possible
	Acute toxicity (Inhalation - dust and mist)	Classification not possible
	Skin corrosion/irritation	Not classified
	Serious eye damage/eye irritation	Not classified
	Respiratory sensitizer	Classification not possible

	Skin sensitizer	Classification not possible
	Germ cell mutagenicity	Not classified
	Carcinogenicity	Classification not possible
	Toxic to reproduction	Classification not possible
	Specific target organ toxicity - single exposure	Classification not possible
	Specific target organ toxicity - repeated exposure	Classification not possible
	Aspiration hazard	Not applicable
<b>Environmental hazards</b>	Acute hazards to the aquatic environment	Not classified
	Chronic hazards to the aquatic environment	Not classified

**GHS label elements:** Not Applicable

**Hazardous statements:** The product may form flammable or explosive dust-air mixtures.

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### SECTION 3: Composition/information on ingredients

**Substance or Mixture:** Substance  
**Chemical Name:** DL-Methionine , DL-2-amino-4-methylthio butanoic acid  
**Formula:** C5H11NO2S

Chemical name	Concentration	CAS-number
DL-Methionine	99% min.	59-51-8

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### SECTION 4: First aid measures

**Inhalation:** Rinse mouth thoroughly with water.  
Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
Administer oxygen if breathing is difficult.  
Apply artificial respiration if victim is not breathing.  
Keep victim warm with a blanket etc.  
Get immediate medical advice/attention.

**Skin contact:** Remove/ take off immediately contaminated clothing and shoes.  
Gently wash with plenty of soap and water.  
If skin irritation or rash occurs: Get medical advice/attention.

**Eye contact:** Do not rub eye.  
Hold eyelids apart.  
Begin to rinse with water as soon as possible and rinse cautiously for at least 15 minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
Get immediate medical advice/attention.

**Ingestion** Rinse mouth thoroughly with water.  
Give large quantities of water and/or induce vomiting.  
Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
Keep victim warm with a blanket etc.  
Get immediate medical advice/attention.  
Administer oxygen if breathing is difficult.  
Apply artificial respiration if victim is not breathing.  
Do not give victim anything to drink if he is unconscious.  
Effect of exposure to substance may be delayed.  
Medical observation is indicated.

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**SECTION 5: Firefighting measures**

<b>Extinguishing media:</b>	Small fires: Dry chemical powder, Carbon dioxide, Dry sand Large fires: Regular foam, Water spray, Fog.
<b>Unsuitable extinguishing media:</b>	Straight streams
<b>Unusual Fire &amp; Explosion Hazards:</b>	Will be easily ignited by ignition sources such as heat, mechanical sparks, static discharge or open flames. When heated, decomposition gases may form explosive mixtures with air. Fire may produce flammable and/or harmful gases (See "10. Stability and reactivity"). Powders or dusts may explode or burn with explosive violence. Risk of fire and explosion on contact with incompatible material(s).
<b>Special Fire Fighting Procedures:</b>	If possible, fight fire from protected position. Keep upwind. Keep unauthorized personnel away. If possible, remove containers exposed to heat or cool with water. Do not scatter spilled material with high pressure water streams. Dike fire water for later disposal; do not spread the material.
<b>Protective Measures:</b>	Wear regional, national, and local standards approved fire fighting turnout gear and positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection from heat, and may not provide adequate protection from the harmful vapors or liquids.

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**SECTION 6: Accidental release measures**

<b>Personal precautions and Protective equipment :</b>	Wear appropriate protective equipment. Use personal protection recommended in "8. Exposure control/personal protection". Isolate spill or leak area for proper distance in all directions. Do not touch or walk through spilled material.
<b>Emergency measures</b>	Keep all unauthorized personnel upwind away. Consult an expert. Warn habitants surroundings. Block navigation on waterways. Form large safety zone.
<b>Environmental precautions:</b>	Prevent entry spilled material and runoff from spillage control into waterways, sewers, basements or confined areas. Avoid release to the environment.
<b>Spill Cleanup Methods:</b>	For small spill, collect spilled solid/particle solid into sealable containers. Use clean non-sparking tools. Collect fine substance by dust explosion-proof cleaner to prevent scatter. For large spill, wet down with water and dike for the later disposal. See "13. Disposal considerations".

**Prevention of second disaster:**

Eliminate all ignition sources such as heat/sparks/open flames/hot surfaces/static discharges  
Use explosion-proof electrical equipment and lighting.  
Prevent from accumulation of static electricity by grounding and bonding of all equipment, and by wearing work clothings made of appropriate material.  
Prepare appropriate extinguishing agent. (See "5. Fire-fighting measures")  
Prevent dust cloud or/and dust accumulation.  
For large spill, consider initial downwind evacuation for proper distance.

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**SECTION 7: Handling and storage**

**Handling and technical measures :**

Use only outdoors or in a well-ventilated area.  
Eliminate all ignition sources.  
Handle dust in closed system.  
Prevent dust cloud and dust accumulation.  
Do not breath powder or dust.  
As precautions for electrostatic discharge, inerting closed systems and explosion pressure venting of confined spaces are recommended.  
Use only metal or electrically conductive plant units (pipelines, ducts, silos, etc.) and ground/bond all of them. Do not use insulating equipment and conductive equipment with insulating inner lining or coating, unless taking precautionary measures of inerting with nitrogen or inert gas.  
If dust generates, use dust explosion-proof electrical/ventilating/lighting/equipment.  
Take precautionary measures against static discharge.  
Ground person by means of antistatic shoes with antistatic clothing and conductive floors.  
Consult an expert about further precautionary measures for dust explosion.

**precautions:**

Ventilate by appropriate method. (See "8. Exposure control/personal protection")  
Install appropriate equipment and wear appropriate protective clothing. (See "8. Exposure control/personal protection")  
Wash hands and face thoroughly after handling.  
Eating, drinking and smoking in work areas is prohibited.  
Contaminated work clothing should not be allowed out of the workplace.  
Keep away from heat/sparks/open flames/hot surfaces.  
No smoking.  
Keep containers tightly closed.

**Storage:**

Well ventilate by proper manner according to regional, national and local regulations.  
Protect against direct sunlight.  
Keep in a fire-proof designed place.  
Separate from incompatible materials. See "10. Stability and reactivity".

**Recommended packaging material:**

Use package or container with anti-static discharge liner.

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**SECTION 8: Exposure controls/personal protection**

<b>Permissible concentration :</b>	Japan Society for Occupational Health (2010) 8 mg/m <sup>3</sup> ( Class3 / Total dust) 2 mg/m <sup>3</sup> ( Class3 / Respirable dust) ACGIH (2010) Particles not otherwise specified 10 mg/m <sup>3</sup> (Inhalable particles) 3 mg/m <sup>3</sup> (Respirable particles)
<b>Engineering control :</b>	Use closed system and equipment, or local and/or general exhaust to maintain product dust concentrations in air below occupational exposure standards. Wear personal protective equipment (PPE) for handling the product. Wear positive pressure self-contained breathing apparatus (SCBA) in circumstance above occupational exposure standards for dust including emergency procedures and cleaning for accidental release. Personal protective equipment (PPE) should be chosen only according to specific regulatory requirements. Maintain eye wash fountain and quick-drench facilities in work area. Control equipment and handling to prevent dust explosion hazards. See "7. Handling and storage".
<b>Hygiene control :</b>	Avoid inhalation of dust. Do not eat, drink or smoke during work. Wash thoroughly after handling and before eating or drinking.
<b>Respiratory Protection:</b>	Breathing protective equipment should be chosen only according to specific regulatory requirements. Wear positive pressure self contained breathing apparatus (SCBA) in circumstance above occupational exposure standards for dust including emergency procedures and cleaning for accidental release.
<b>Hand protection:</b>	Impervious gloves.
<b>Eye protection:</b>	Eye protective equipment should be chosen only according to specific regulatory requirements. Chemical safety goggles.
<b>Skin protection:</b>	Personal protective equipment (PPE) should be chosen only according to specific regulatory requirements. Suitable impervious protective clothing, including protective footwear, gloves, lab coat, apron or coveralls.

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**SECTION 9: Physical and chemical properties**

<b>Physical State:</b>	Crystalline powder
<b>Color:</b>	White or pale yellow
<b>Odor:</b>	Characteristic
<b>pH:</b>	5.2 – 6.1 (1% aqueous solution)
<b>Melting Point:</b>	Not available. (decomposition : > 250°C) (EEC A.1 OECD102)

<b>Boiling Point:</b>	Not applicable
<b>Flash Point:</b>	Not applicable
<b>Autoignition Temperature:</b>	No data available
<b>Flammability Limit - Upper (%)-:</b>	No data available
<b>Flammability Limit - Lower (%)-:</b>	No data available
<b>Flammability:</b>	Not considered as highly flammable (EC A. 16)
<b>Lower Limit of Dust Explosion :</b>	60 g/m <sup>3</sup> (particle size < 75 μ m) (JIS Z 8118(2002))
<b>Minimum ignition energy :</b>	10 - 30mJ (Without inductance) (ASTM E2019)
<b>Vapor pressure:</b>	< 8.40 X 10 <sup>7</sup> Pa (20°C) (EEC A. 4 OECD104)
<b>Vapor density (air=1):</b>	No data available
<b>Relative density:</b>	1.32 g/cm <sup>3</sup> (EC A. 3 OECD 109)
<b>Bulk density:</b>	0.50 - 0.80 g/cm <sup>3</sup> (CIPAC MT159)
<b>Solubility in Water:</b>	31.6 g/l (20°C) (EC A. 6 OECD105)
<b>Solubility (other):</b>	Soluble in diluted acids, alkalis. Very slightly soluble in 95% ethyl alcohol. Insoluble in diethyl ether.
<b>Partition coefficient (n-octanol/water):</b>	og Pow : 3.5 (EC A. 8 OECD107)
<b>Decomposition Temperature:</b>	> 250°C (EEC A. 1 OECD102)

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#### **SECTION 10: Stability and reactivity**

<b>Stability:</b>	Stable at normal conditions. May form explosive dust cloud.
<b>Condition to avoid</b>	Ignition sources (open flame, spark, heat, hot surface, static discharge etc.), incompatibles.
<b>Incompatible Materials</b>	Strong oxidizers
<b>Decomposition Products</b>	Carbon monoxide, Carbon dioxide, Hydrocarbons, Sulfuric oxides, Nitrogen oxides

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#### **SECTION 11: Toxicological information**

##### **Acute Toxicity:**

<b>Oral:</b>	LD50 : > 5000 mg/kg (rats, mice)
<b>Dermal:</b>	LD50 : > 2000 mg/kg (mice)
<b>Inhalation - gas:</b>	Not applicable
<b>Inhalation - dust and mist:</b>	Classification not possible
<b>Inhalation - vapour:</b>	Classification not possible

<b>Skin corrosion/irritation:</b>	Not irritating (rabbit)
<b>Serious eye damage/eye irritation:</b>	Mildly Irritating (rabbit)
<b>Respiratory sensitizer/Skin sensitizer:</b>	No data available
<b>Germ cell mutagenicity:</b>	
<b>In vitro:</b>	Negative (Ames test)
<b>In vivo:</b>	No data available
<b>Sub-acute Toxicity :</b>	No adverse effects were found in rats orally treated at the dose level of 25 - 200 mg/kg/day for 90 days.
<b>Carcinogenicity:</b>	No data available
<b>IARC</b>	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
<b>OSHA</b>	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
<b>NTP</b>	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
<b>Reproductive toxicity:</b>	No data available
<b>Specific target organ toxicity following single exposure:</b>	No specific target organs noted
<b>Specific target organ toxicity following repeated exposure:</b>	No specific target organs noted
<b>Aspiration hazard:</b>	No data available
<b>Other Effects:</b>	No data available

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## SECTION 12: Ecological information

<b>Acute toxicity:</b>	
<b>Fish:</b>	LC50 (96hr) : > 100 mg/L ( <i>Oryzias latipes</i> )
<b>Aquatic invertebrates:</b>	EC50 (48hr) : > 1000 mg/L ( <i>Daphnia magna</i> )
<b>Aquatic Plants:</b>	ErC50 (72hr) : > 1000 mg/L ( <i>Pseudokirchneriella subcapitata</i> )
<b>Chronic Toxicity:</b>	
<b>Fish:</b>	No data available
<b>Aquatic invertebrates:</b>	NOEC (21d) : 32 mg/L (Water flea reproductive test)
<b>Aquatic Plants:</b>	No data available

**Persistence and Degradability:** No data available

**Bioaccumulative potential:** log Pow = - 3.5 (low bioaccumulation potential)

**Mobility:** No data available

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### **SECTION 13: Disposal considerations**

**Waste disposal:** Disposal must be in accordance with local regulations.

**Container disposal:** Disposal must be in accordance with local regulations.

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### **SECTION 14: Transport information**

#### **TDG (Canada)**

Not Regulated for Transportation of Dangerous Goods

#### **DOT (US)**

Not Regulated for Transportation of Dangerous Goods

#### **IMDG**

Not Regulated for Transportation of Dangerous Goods

#### **IATA**

Not Regulated for Transportation of Dangerous Goods

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### **SECTION 15: Regulatory information**

#### **EPCRA - Emergency Planning and Community Right-to-Know Act**

##### **CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

##### **SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

##### **SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : No SARA Hazards

#### **Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

#### **Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307



## US State Regulations

### Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

### Pennsylvania Right To Know

DL methionine

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### California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

#### The components of this product are reported in the following inventories:

REACH	:	This substance is exempt from registration according to Regulation (EC) No. 1907/2006 (REACH).
DSL	:	All components of this product are on the Canadian DSL
AICS	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
ISHL	:	On the inventory, or in compliance with the inventory
KECI	:	Not in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	On TSCA Inventory

#### TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

#### Canadian lists

No substances are subject to a Significant New Activity Notification.

## 16. OTHER INFORMATION

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#### Disclaimer:

The provided information is based on currently available law, materials, information, and data; however, information regarding concentration, physical and chemical properties, and hazard identification is not guaranteed. Precautions for safe handling are intended for a normal condition. In case of specific condition, please handle a product with appropriate safety measures that are compatible to the product usage.

Version: 2

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