



# SAFETY DATA SHEET

## SPECIALTY ELECTRONIC MATERIALS (THAILAND) COMPANY LIMITED

**Product name:** Liveo™ TI-1050 Fluid, 1.5 cSt

**Issue Date:** 20.10.2018

**Print Date:** 22.06.2022

SPECIALTY ELECTRONIC MATERIALS (THAILAND) COMPANY LIMITED encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

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## 1. PRODUCT AND COMPANY IDENTIFICATION

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**Product name:** Liveo™ TI-1050 Fluid, 1.5 cSt

**Recommended use of the chemical and restrictions on use**

**Identified uses:** Intermediate

### COMPANY IDENTIFICATION

SPECIALTY ELECTRONIC MATERIALS  
(THAILAND) COMPANY LIMITED  
87 M.THAI TOWER, ALL SEASONS PLACE, 7TH FLOOR,  
WIRELESS ROAD, LUMPINI  
PATHUMWAN BANGKOK 10330  
THAILAND

**Customer Information Number:**

66-2659 4000

SDSQuestion-AP@dupont.com

**Fax:**

66-2659 4006

### EMERGENCY TELEPHONE NUMBER

**24-Hour Emergency Contact:** 001-800-13-203-9987

**Local Emergency Contact:** 001 800 13 203 9987

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## 2. HAZARDS IDENTIFICATION

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### GHS Classification

Flammable liquids - Category 3

### GHS label elements

Hazard pictograms



Signal word: **WARNING!**

**Hazard statements**

Flammable liquid and vapour.

**Precautionary statements****Prevention**

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ ventilating/ lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Wear protective gloves/ eye protection/ face protection.

**Response**

IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide for extinction.

**Storage**

Store in a well-ventilated place. Keep cool.

**Disposal**

Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

Vapours may form explosive mixture with air.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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This product is a substance.

<b>Component</b>	<b>CASRN</b>	<b>Concentration</b>
Decamethyltetrasiloxane	141-62-8	>= 90.0 - <= 100.0 %
Hexamethyldisiloxane	107-46-0	>= 0.09 - <= 0.12 %

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**4. FIRST AID MEASURES**

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**Description of first aid measures**

**General advice:**

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air; if effects occur, consult a physician.

**Skin contact:** Wash off with plenty of water.

**Eye contact:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

**Ingestion:** Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.

**Most important symptoms and effects, both acute and delayed:** Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

**Indication of any immediate medical attention and special treatment needed**

**Notes to physician:** Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

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## **5. FIREFIGHTING MEASURES**

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**Suitable extinguishing media:** Water spray Alcohol-resistant foam Carbon dioxide (CO<sub>2</sub>) Dry chemical

**Unsuitable extinguishing media:** High volume water jet Do not use direct water stream.

**Special hazards arising from the substance or mixture**

**Hazardous combustion products:** Carbon oxides Silicon oxides

**Unusual Fire and Explosion Hazards:** Flash back possible over considerable distance. Exposure to combustion products may be a hazard to health. Fire burns more vigorously than would be expected. Vapours may form explosive mixtures with air.

**Advice for firefighters**

**Fire Fighting Procedures:** Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Do not use a solid water stream as it may scatter and spread fire.

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

**Special protective equipment for firefighters:** Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Remove all sources of ignition. Follow safe handling advice and personal protective equipment recommendations.

**Environmental precautions:** Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

**Methods and materials for containment and cleaning up:** Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, Clean up remaining materials from spill with suitable absorbent. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements. Dispose of saturated absorbent or cleaning materials appropriately, since spontaneous heating may occur. See sections: 7, 8, 11, 12 and 13.

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Avoid inhalation of vapour or mist. Keep container tightly closed. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Take care to prevent spills, waste and minimize release to the environment. Non-sparking tools should be used. Handle in accordance with good industrial hygiene and safety practice. Use with local exhaust ventilation. Use only in an area equipped with explosion proof exhaust ventilation. Ground and bond container and receiving equipment.

**Conditions for safe storage:** Keep in properly labelled containers. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition.

Do not store with the following product types: Strong oxidizing agents. Organic peroxides. Flammable solids. Pyrophoric liquids. Pyrophoric solids. Self-heating substances and mixtures. Substances and mixtures, which in contact with water, emit flammable gases. Explosives. Gases.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
Decamethyltetrasiloxane	Dow IHG	TWA	20 ppm

Hexamethyldisiloxane

Dow IHG

TWA

50 ppm

**Exposure controls**

**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

**Individual protection measures**

**Eye/face protection:** Use safety glasses (with side shields).

**Skin protection**

**Hand protection:** Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

**Other protection:** No precautions other than clean body-covering clothing should be needed.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**Appearance**

<b>Physical state</b>	liquid
<b>Color</b>	colourless
<b>Odor</b>	none
<b>Odor Threshold</b>	No data available
<b>pH</b>	No data available
<b>Melting point/range</b>	No data available
<b>Freezing point</b>	No data available
<b>Boiling point (760 mmHg)</b>	> 35 °C
<b>Flash point</b>	<b>Pensky-Martens closed cup 57.2 °C</b>
<b>Evaporation Rate (Butyl Acetate = 1)</b>	No data available
<b>Flammability (solid, gas)</b>	Not applicable
<b>Lower explosion limit</b>	No data available
<b>Upper explosion limit</b>	No data available
<b>Vapor Pressure</b>	No data available
<b>Relative Vapor Density (air = 1)</b>	No data available
<b>Relative Density (water = 1)</b>	0.850
<b>Water solubility</b>	No data available

<b>Partition coefficient: n-octanol/water</b>	log Pow: 8.21 <i>Measured</i>
<b>Auto-ignition temperature</b>	No data available
<b>Decomposition temperature</b>	No data available
<b>Kinematic Viscosity</b>	1.5 mm <sup>2</sup> /s at 25 °C
<b>Explosive properties</b>	Not explosive
<b>Oxidizing properties</b>	The substance or mixture is not classified as oxidizing.
<b>Liquid Density</b>	0.850 g/cm <sup>3</sup>
<b>Molecular weight</b>	No data available
<b>Particle size</b>	Not applicable

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** Not classified as a reactivity hazard.

**Chemical stability:** Stable under normal conditions.

**Possibility of hazardous reactions:** Can react with strong oxidizing agents. Vapours may form explosive mixture with air. Flammable liquid and vapour.

**Conditions to avoid:** Heat, flames and sparks.

**Incompatible materials:** Oxidizing agents

**Hazardous decomposition products**  
No hazardous decomposition products are known.

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## 11. TOXICOLOGICAL INFORMATION

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*Toxicological information appears in this section when such data is available.*

### Acute toxicity

#### Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

For similar material(s):

LD50, Rat, female, > 2,000 mg/kg No deaths occurred at this concentration.

#### Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50, Rat, > 2,000 mg/kg No deaths occurred at this concentration.

**Acute inhalation toxicity**

No adverse effects are anticipated from single exposure to vapor.

LC50, Rat, 6 Hour, vapour, > 5,080 mg/l400 ppm No deaths occurred at this concentration.

**Skin corrosion/irritation**

Essentially nonirritating to skin.

**Serious eye damage/eye irritation**

May cause slight temporary eye irritation.  
Corneal injury is unlikely.

**Sensitization**

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:  
No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

This material contains decamethyltetrasiloxane (L4). Repeated oral exposure in rats to L4 resulted in protoporphyrin accumulation in the liver. Without knowledge of the specific mechanism leading to the protoporphyrin accumulation the relevance of this finding to humans is unknown.

**Carcinogenicity**

No relevant data found.

**Teratogenicity**

Did not cause birth defects or any other fetal effects in laboratory animals.

**Reproductive toxicity**

In animal studies, did not interfere with reproduction.

**Mutagenicity**

In vitro genetic toxicity studies were negative.

**Aspiration Hazard**

Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

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## 12. ECOLOGICAL INFORMATION

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*Ecotoxicological information appears in this section when such data is available.*

**Ecotoxicity**

**Acute toxicity to fish**

Not expected to be acutely toxic to aquatic organisms.

No toxicity at the limit of solubility  
LC50, Oncorhynchus mykiss (rainbow trout), flow-through, 96 Hour, > 0.0063 mg/l

**Acute toxicity to aquatic invertebrates**

No toxicity at the limit of solubility  
EC50, Daphnia magna (Water flea), 48 Hour, > 0.0055 mg/l

**Acute toxicity to algae/aquatic plants**

No toxicity at the limit of solubility  
EC50, Pseudokirchneriella subcapitata (green algae), Static, 72 Hour, Growth rate, > 0.0022 mg/l

**Toxicity to bacteria**

EC50, activated sludge, Static, 3 Hour, Respiration rates., > 100 mg/l

**Chronic aquatic toxicity****Chronic toxicity to fish**

No toxicity at the limit of solubility  
LC50, Oncorhynchus mykiss (rainbow trout), 14 d, > 0.0056 mg/l

No toxicity at the limit of solubility  
NOEC, Oncorhynchus mykiss (rainbow trout), 14 d, >= 0.0056 mg/l

No toxicity at the limit of solubility  
NOEC, Oncorhynchus mykiss (rainbow trout), 90 d, >= 0.0079 mg/l

**Chronic toxicity to aquatic invertebrates**

On basis of test data.  
No toxicity at the limit of solubility  
NOEC, Daphnia magna (Water flea), 21 d, 0.0049 mg/l

**Persistence and degradability**

**Biodegradability:** Material is not readily biodegradable according to OECD/EEC guidelines.  
10-day Window: Not applicable  
**Biodegradation:** 0 %  
**Exposure time:** 28 d  
**Method:** OECD Test Guideline 310

**Bioaccumulative potential**

**Bioaccumulation:** Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).  
**Partition coefficient: n-octanol/water(log Pow):** 8.21 Measured  
**Bioconcentration factor (BCF):** 3,397 Estimated.

**Mobility in Soil**

Expected to be relatively immobile in soil (Koc > 5000).  
**Partition coefficient (Koc):** > 5000 Estimated.

**Results of PBT and vPvB assessment**

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

**Other adverse effects**



This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

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### 13. DISPOSAL CONSIDERATIONS

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**Disposal methods:** 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. AS YOUR SUPPLIER, WE HAVE 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: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device.

This product when disposed of in its unused and uncontaminated state should be treated as a hazardous waste.

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### 14. TRANSPORT INFORMATION

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**Classification for ROAD and Rail transport:**

<b>Proper shipping name</b>	FLAMMABLE LIQUID, N.O.S.(Decamethyltetrasiloxane)
<b>UN number</b>	UN 1993
<b>Class</b>	3
<b>Packing group</b>	III

**Classification for SEA transport (IMO-IMDG):**

<b>Proper shipping name</b>	FLAMMABLE LIQUID, N.O.S.(Decamethyltetrasiloxane)
<b>UN number</b>	UN 1993
<b>Class</b>	3
<b>Packing group</b>	III
<b>Marine pollutant</b>	No
<b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

<b>Proper shipping name</b>	Flammable liquid, n.o.s.(Decamethyltetrasiloxane)
<b>UN number</b>	UN 1993
<b>Class</b>	3
<b>Packing group</b>	III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container

volume and may be influenced by regional or country variations in regulations. 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.

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## 15. REGULATORY INFORMATION

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### Thailand: Notification of Department of Labour Protection and Welfare (List of Hazardous Chemicals)

All components of this product are not listed.

### Hazardous Substance Act B.E. 2535

Not applicable

### Emergency Decree on Controlling the Use of Volatile Substances B.E. 2533

Not applicable

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## 16. OTHER INFORMATION

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### Revision

Identification Number: 4118578 / 9852 / Issue Date: 20.10.2018 / Version: 2.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

### Legend

Dow IHG	Dow Industrial Hygiene Guideline
TWA	Time weighted average

### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI -

Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

SPECIALTY ELECTRONIC MATERIALS (THAILAND) COMPANY LIMITED urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS 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 his 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 the manufacturer, 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 (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

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