1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Identification of the product

Identification of the mixture: Mixland + TMTM 80% GA

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Curing chemical

1.3. Details of the supplier of the safety data sheet

Supplier

MLPC International
209, Avenue Charles Despiau
F-40370 RION-DES-LANDES
FRANCE
Tel. + 33 (0) 5 58 57 02 00
http://www.mlpc-intl.com
fds@mlpc-intl.com

1.4. Emergency telephone number

+44 (0) 1235 239 670 (Carechem24 – MLPC 29003) **Europe**
001866 928 0789 (Carechem24 – MLPC 29003) **Americas**
+65 3158 1074 (Carechem24 – MLPC 29003) **Asia-pacific region** (excluding China)
+86 400 6267911 **China mainland**

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008):
Oral: Acute toxicity, 4, H302
Skin sensitisation, 1, H317
Acute toxicity, 4, H332
Specific target organ toxicity - repeated exposure, 2, Liver, H373
Acute aquatic toxicity, 1, H400
Chronic aquatic toxicity, 2, H411
M-Factor: Acute = 1
Chronic = 1

Additional information:
For the full text of the H, EUH-phrases mentioned in this Section, see Section 16.

2.2. Label elements

Label elements (REGULATION (EC) No 1272/2008):

Hazardous components which must be listed on the label:
tetramethylthiuram monosulphide

Hazard pictograms:

Signal word: **Warning**

Hazard statements:
H302 : Harmful if swallowed.
H317 : May cause an allergic skin reaction.
H332 : Harmful if inhaled.
H373 : May cause damage to organs through prolonged or repeated exposure.
H400 : Very toxic to aquatic life.
H411 : Toxic to aquatic life with long lasting effects.

Precautionary statements:
Prevention:
P273 : Avoid release to the environment.
P280 : Wear protective gloves/protective clothing/eye protection/face protection.
P260 : Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Response:
P314 : Get medical advice/ attention if you feel unwell.
P333 + P313 : If skin irritation or rash occurs: Get medical advice/ attention.
Disposal:
P501 : Dispose of contents/ container to an approved waste disposal plant.

2.3. Other hazards : None.

Other:
Results of PBT and vPvB assessment : According to REACH regulation, annex XIII, the substance does not meet PBT and vPvB criteria.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Chemical nature of the mixture[1]:
Mixture based on: Polymer and

Hazardous components (accordance with Annex II of Regulation (EC) No 1907/2006 and its amendment(s)) :

Chemical name[1] & REACH Registration Number[2]	EC-No.	CAS-No.	Concentration	Classification REGULATION (EC) No 1272/2008
Tetramethylthiuram monosulphide (01-2119980834-25) (N° ANNEX: 006-080-00-3)	202-605-7	97-74-5	< 80 %	Acute Tox. 4 (Oral); H302 Skin Sens. 1; H317 Aquatic Chronic 2; H411
Distillates (petroleum), hydrotreated light paraffinic (01-2119487077-29) (N° ANNEX: 649-468-00-3)	265-158-7	64742-55-8	10,5 - 11,5%	AH 1; H304 Nota L: DMSO <3%

[1]: See chapter 14 for Proper Shipping Name
[2] :See the text of the regulation for applicable exceptions or provisions : The transition time according to REACH Regulation, Article 23, is still not expired.
For the full text of the H, EUH-phrases mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1. Description of necessary first-aid measures:

General advice:
Take off immediately all contaminated clothing.

Inhalation:
Move to fresh air. Consult a physician.

Skin contact:
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Eye contact:
Wash well-open eyes immediately, abundantly and thoroughly with water. Consult an ophthalmologist.

Ingestion:
Call a physician immediately. Do not induce vomiting without medical advice. Rinse mouth.

Protection of first-aiders:
If entering a saturated atmosphere, wear a self contained breathing apparatus.

4.2. Most important symptoms/effects, acute and delayed: No data available.

4.3. Indication of immediate medical attention and special treatment needed, if necessary: No data available.

5. FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media: Water spray, Foam, Dry powder

Unsuitable extinguishing media: All other extinguishants

5.2. Special hazards arising from the substance or mixture:
Thermal decomposition gives :, Nitrogen oxides (NOx), Sulphur oxides, Carbon oxides

5.3. Advice for firefighters:

Specific methods:
Suppress gases, fumes and/or dust with water spray jet. Remove all sources of ignition.

Special protective actions for fire-fighters:
Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:
Avoid contact with skin and eyes and inhalation of dust.

6.2. Environmental precautions:
Do not let product enter drains. Do not contaminate surface water.

6.3. Methods and materials for containment and cleaning up:

Recovery:
Shovel or sweep up. Recover the product and place in a dry labelled container.

Elimination:
Dispose of as hazardous waste in compliance with local and national regulations.

6.4. Reference to other sections: None.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling:

Technical measures/Precautions:
Provide appropriate exhaust ventilation at machinery. Provide showers, eye-baths. In the presence of an ignition source: Dust may form explosive mixture in air.

Safe handling advice:
In case of dust formation, wear a dust mask. Avoid static electricity build up with connection to earth.

Hygiene measures:
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with the skin and the eyes.
Wash hands after handling. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities:
Store protected from moisture and heat. Protect from light. Keep away from direct sunlight.

Incompatible products:
Strong acids, Oxidizing agents

Packaging material:
Recommended: Cardboard lined with polyethylene liner, Paper bags lined with polyethylene

7.3. Specific end use(s): None.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Exposure Limit Values Not relevant

Derived No Effect Level (DNEL):

End Use	Inhalation	Ingestion	Skin contact
Workers	0,168 mg/m3 (LT, SE) 101,8 mg/m3 (ST, SE)		0,024 mg/kg (LT, SE)
Consumers	0,0416 mg/m3 (LT, SE) 69,2 mg/m3 (ST, SE)	0,012 mg/kg (LT, SE)	0,012 mg/kg (LT, SE)

LE : Local effects, **SE** : Systemic effects, **LT** : Long term, **ST** : Short term

Predicted No Effect Concentration:

Compartment:	Value:
Fresh water	1 µg/l
Marine water	0,1 µg/l
Water (Intermittent release)	10 µg/l
Effects on waste water treatment plants	10 mg/l
Fresh water sediment	0,0612 mg/kg
Marine sediment	0,0061 mg/kg
Soil	0,0117 mg/kg

8.2. Exposure controls:

General protective measures: Ensure sufficient air exchange and/or exhaust in work areas

Personal protective equipment:

Respiratory protection: Effective dust mask
Hand protection: Impervious gloves
Eye/face protection: Tightly fitting safety goggles
Skin and body protection: Protective suit

Environmental exposure controls: See chapter 6

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:

Physical state (20°C): solid
Form: granules
Colour: yellow

Odour: slight
Olfactory threshold: No data available.
pH: Not applicable
Melting point/range : 106 - 110 °C Active ingredient (OECD Test Guideline 102)
Boiling range : Decomposes before boiling., Pure substance
Flash point: No data available
Evaporation rate: No data available.
Flammability (solid, gas):

Flammability: Non flammable product (Method A10: Flammability (solids))

Vapour pressure: < 0,02 Pa , at 25 °C Active ingredient (Estimated.)
Vapour density: No data available.
Relative density: No data available.
Bulk density: Average 1,25 kg/m3 , at 20 °C
Water solubility: 308 mg/l Active ingredient at 25 °C (OECD Test Guideline 105)
Partition coefficient: n-octanol/water: log Kow : = 1,17 (OECD Test Guideline 107)

Auto-ignition temperature:	No data available.
Decomposition temperature:	approx. 243 °C Active ingredient (A2 Method (D. 92/69/ECC))
Viscosity, kinematic:	Not applicable
Explosive properties:	
Explosivity:	Not explosive (A14 Method)
Oxidizing properties:	Not relevant (due to the chemical structure)

9.2. Other data:

Solubility in other solvents:	Soluble in: , Aromatic solvents
Surface tension:	70,2 mN/m at 20 °C / 900 mg/l Active ingredient (OECD Test Guideline 115)
pKA:	< 2 at 20 °C Pure product : (OECD Test Guideline 112)
Molecular weight:	208,37 g/mol (Literature)

10. STABILITY AND REACTIVITY

10.1. Reactivity: No data available.

10.2. Chemical stability:
The product is stable under normal handling and storage conditions.

10.3. Possibility of hazardous reactions: No data available.

10.4. Conditions to avoid:
Store protected from moisture and heat. Protect from light. Keep away from direct sunlight.

10.5. Incompatible materials to avoid:
Strong acids and strong bases

10.6. Hazardous decomposition products:

Thermal decomposition:
Decomposition temperature: approx. 243 °C
Active ingredient

Nitrogen oxides (NOx), Carbon dioxide (CO_2), Sulphur oxides

11. TOXICOLOGICAL INFORMATION

All available data on this product and/or the components quoted in section 3 and/or the analogue substances/metabolites have been taken into account for the hazard assessment.

11.1. Information on toxicological effects:

Acute toxicity:

Inhalation:	**According to its structure, must be considered as : Harmful by inhalation.** May be considered as comparable to a similar product for which experimental results are:
THIRAM :	
• In animals :	LC50/4 h/Rat: 4,42 mg/l (Aerosol)
Ingestion:	**Harmful by ingestion.**
• In animals :	LD50/Rat: 690 mg/kg (Method: OECD Test Guideline 401)
Dermal:	**Slightly harmful in contact with skin**
• In animals :	No mortality/Rat: > 2.000 mg/kg (Method: OECD Test Guideline 402)

Local effects (Corrosion / Irritation / Serious eye damage):

Skin contact:	**Slightly irritating to skin.**
• In animals :	Mild skin irritation (OECD Test Guideline 404, Rabbit)
Eye contact:	**Slightly irritating to eyes**
• In animals :	Mild eye irritation (OECD Test Guideline 405, Rabbit)

Respiratory or skin sensitisation:

Inhalation: No data available.

Skin contact: **Weak skin sensitizer**
• In man : Some cases of cutaneous sensitization reported
• In animals : Sensitizing effects by skin contact. (Method: Buehler Test, Guinea pig)

CMR effects :

Mutagenicity: **Overall not genotoxic**

In vitro

Ames test in vitro: Active (Method: OECD Test Guideline 471)
In vitro gene mutations test on mammalian cells: Inactive

In vivo

Micronucleus test in vivo rat: Inactive (Method: OECD Test Guideline 475)

Carcinogenicity: **Based on the available data, the substance is not suspected of having carcinogenic potential**
May be considered as comparable to a similar product for which experimental results are:

THIRAM :
• In animals : Absence of carcinogenic effects in animal (rat, dog, 2 years, By diet)

Reproductive toxicity:

Fertility: **Based on the available data, the substance is not suspected of having reprotoxic potential.**

THIRAM :
• In animals : Two generations study.
NOAEL (Parental toxicity): 1,5 mg/kg bw/day
(Rat, By diet)
Absence of toxic effects on fertility
NOAEL (Parental toxicity): 9 mg/kg bw/day
NOAEL (Fertility): 9 mg/kg bw/day
NOAEL (Developmental Toxicity): 9 mg/kg bw/day
No teratogenic effects

Foetal development: **Based on the available data, the substance is not suspected of having developmental toxicity potential.**

THIRAM :
• In animals : Absence of congenital malformations, Toxic effects for foetal development at toxic maternal doses
NOAEL (Developmental Toxicity): 15 mg/kg bw/day
(Rat, By oral route)
NOAEL (Maternal Toxicity): < 7,5 mg/kg bw/day
Absence of toxic effects for foetal development
NOAEL (Developmental Toxicity): 5 mg/kg bw/day
(Rabbit, By oral route)
NOAEL (Maternal Toxicity): 2,5 mg/kg bw/day

Specific target organ toxicity :
Single exposure :

Inhalation:

At high concentrations , Dust inhalation:, Possible irritation of respiratory system

Repeated exposure: **The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.**
Target Organs : Liver

May be considered as comparable to a similar product for which experimental results are:

THIRAM :

• In animals : By diet: Target organs: Stomach, Haematological system, NOAEL= 3,5 mg/kg (Rat, 3 months)

By diet: Target organs: Liver, Haematological system, NOAEL= 2 mg/kg (Dog, 3 months)
dermal route: Local irritation
NOAEL= 300 mg/kg (Rabbit, 3 Weeks)

Aspiration hazard: Not relevant
Further information: Use of alcoholic beverages may enhance toxic effects.

12. ECOLOGICAL INFORMATION

Ecotoxicology Assessment: All available data on this product and/or the components quoted in section 3 and/or the analogue substances/metabolites have been taken into account for the hazard assessment.

12.1. Toxicity :

Fish: **Toxic to fish.**
LC50, 96 h (Poecilia reticulata (guppy)) : = 5,3 mg/l (Method: OECD Test Guideline 203)

Aquatic invertebrates: **Toxic to daphnia.**
EC50, 48 h (Daphnia magna (Water flea)) : = 2,9 mg/l (Method: OECD Test Guideline 202)

Aquatic plants: **Very toxic to algae.**
EC50, 96 h (Chlorella pyrenoidosa (aglae)) : = 1 mg/l (Method: OECD Test Guideline 201, growth rate)

Microorganisms:
NOEC, 28 d : = 100 mg/l

Aquatic toxicity / Long term toxicity:

Fish: LC50, 60 d (Salmo gairdneri) : = 0,038 mg/l
LC50, 7 d (Brachydanio rerio) : = 0,032 mg/l

Aquatic invertebrates: LC50, 21 d (Daphnia magna (Water flea)) : = 0,164 mg/l (Method: OECD Test Guideline 211)

Aquatic plants: EC50, 96 h (Chlorella pyrenoidosa) : < 1 mg/l (Method: OECD Test Guideline 201, growth rate)

M-Factor: Acute = 1
Chronic = 1

12.2. Persistence and degradability :

Biodegradation (In water):
0 % after 28 d (Method: OECD Test Guideline 301 F)

12.3. Bioaccumulative potential :

Bioaccumulation: **Not bioaccumulable**
Partition coefficient: n-octanol/water: log Kow : = 1,17 (Method: OECD Test Guideline 107)

12.4. Mobility in soil - Distribution among environmental compartments:

Surface tension: 70,2 mN/m mg/l 20 °C /900 mg/l Active ingredient, (Method: OECD Test Guideline 115)

Absorption / desorption:
Koc: = 576 (Method: calculated)

12.5. Results of PBT and vPvB assessment :

According to REACH regulation, annex XIII, the substance does not meet PBT and vPvB criteria.

12.6. Other adverse effects: None known.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment:

Disposal of product: Destroy the product by incineration (in accordance with local and national regulations).

Disposal of packaging: Destroy packaging by incineration at an approved waste disposal site (in accordance with local and national regulations).

14. TRANSPORT INFORMATION

Regulation	14.1. UN number	14.2. UN proper shipping name	14.3. Class*	Label	14.4. PG*	14.5. Environmental hazards	14.6. Special precautions for user
ADR	3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(TETRAMETHYLTHIURAM MONOSULFIDE)	9	9	III	yes	
ADN	3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (TETRAMETHYLTHIURAM MONOSULFIDE)	9	9	III	yes	
RID	3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (TETRAMETHYLTHIURAM MONOSULFIDE)	9	9	III	yes	
IATA Cargo	3077	Environmentally hazardous substance, solid, n.o.s. (TETRAMETHYLTHIURAM MONOSULFIDE)	9	9MI	III	yes	
IATA Passenger	3077	Environmentally hazardous substance, solid, n.o.s. (TETRAMETHYLTHIURAM MONOSULFIDE)	9	9MI	III	yes	
IMDG	3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (TETRAMETHYLTHIURAM MONOSULFIDE)	9	9	III	Marine pollutant	EmS Number: F-A, S-F Mark: MP

*Description: 14.3. Transport hazard class(es)
14.4. Packing group

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

15. REGULATORY INFORMATION

Safety data sheets: accordance with Annex II of Regulation (EC) No 1907/2006 and its amendment(s)

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture:

15.2. Chemical safety assessment: None.

INVENTORIES:

EINECS:	Conforms to
TSCA:	Conforms to
AICS:	Conforms to
DSL:	All components of this product are on the Canadian DSL
ENCS (JP):	Does not conform
KECI (KR):	Conforms to
PICCS (PH):	Conforms to
IECSC (CN):	Does not conform
NZIOC:	Conforms to

16. OTHER INFORMATION

Full text of H, EUH-phrases referred to under sections 2 and 3

H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H317	May cause an allergic skin reaction.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Update:

Safety datasheet sections which have been updated:		Type:
3	REACH Registration Number	Additions

Thesaurus:
NOAEL : No Observed Adverse Effect Level (NOAEL)
LOAEL : Lowest Observed Adverse Effect Level (LOAEL)
bw : Body weight
food : oral feed
dw : Dry weight
vPvB : very Persistent and very Bioaccumulative
PBT : Persistent, Bioaccumulative and Toxic

This information applies to the PRODUCT AS SUCH and conforming to specifications of ARKEMA. In case of formulations or mixtures, it is necessary to ascertain that a new danger will not appear. The information contained is based on our knowledge of the product, at the date of publishing and it is given quite sincerely. Users are advised of possible additional hazards when the product is used in applications for which it was not intended. This sheet shall only be used and reproduced for prevention and security purposes. The references to legislative, regulatory and codes of practice documents cannot be considered as exhaustive. It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product. It is also the responsibility of the handlers of the product to pass on to any subsequent persons who will come into contact with the product (usage, storage, cleaning of containers, other processes) the totality of the information contained within this safety data sheet and necessary for safety at work, the protection of health and the protection of environment.

NB: In this document the numerical separator of the thousands is the "." (point), the decimal separator is "," (comma).