SAFETY DATA SHEET
1-METHYLIMIDAZOLE

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	1-METHYLIMIDAZOLE
Product number	981
Synonyms; trade names	LUPRAGEN NMI - N-METHYLIMIDAZOLE
REACH registration number	01-2119979544-23-XXXX
CAS number	616-47-7
EU index number	613-035-00-7
EC number	210-484-7

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

Identified uses	Industrial application Chemical Intermediate

1.3. Details of the supplier of the safety data sheet

Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1.4. Emergency telephone number

Emergency telephone	SGS - +32 (0)3 575 55 55 (24h)
Sds No.	981

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Not Classified
Health hazards	Acute Tox. 4 - H302 Acute Tox. 3 - H311 Skin Corr. 1B - H314 Eye Dam. 1 - H318
Environmental hazards	Not Classified

2.2. Label elements

EC number 210-484-7

Hazard pictograms

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Signal word	Danger
Hazard statements	H302 Harmful if swallowed. H311 Toxic in contact with skin. H314 Causes severe skin burns and eye damage.
Precautionary statements	P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISON CENTER/ doctor.

2.3. Other hazards

This substance is not classified as PBT or vPvB according to current EU criteria.

SECTION 3: Composition/information on ingredients

3.1. Substances

Product name	1-METHYLIMIDAZOLE
REACH registration number	01-2119979544-23-XXXX
EU index number	613-035-00-7
CAS number	616-47-7
EC number	210-484-7
Composition comments	The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information	First aid personnel should wear appropriate protective equipment during any rescue. Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk.
Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Inhale Corticosteroid dose aerosol Get medical attention immediately.
Ingestion	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Rinse mouth thoroughly with water. Do not induce vomiting. Immediately rinse mouth and drink plenty of water (200-300 ml). Get medical attention immediately.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention immediately.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention immediately. Continue to rinse.

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

Inhalation	Gas or vapour in high concentrations may irritate the respiratory system. Prolonged inhalation of high concentrations may damage respiratory system.
Ingestion	Causes severe burns. May cause chemical burns in mouth, oesophagus and stomach. Harmful if swallowed.

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Skin contact	Toxic in contact with skin. Causes severe burns. May cause serious chemical burns to the skin.
Eye contact	Causes serious eye damage. May cause chemical eye burns. May cause permanent damage if eye is not immediately irrigated.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor	No specific recommendations. Treat symptomatically. Development of symptoms may be delayed for 24 to 48 hours. Keep affected person under observation.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards	When heated, vapours/gases hazardous to health may be formed.
Hazardous combustion products	Thermal decomposition or combustion products may include the following substances: Carbon dioxide (CO2). Carbon monoxide (CO). Nitrous gases (NOx).

5.3. Advice for firefighters

Protective actions during firefighting	No action shall be taken without appropriate training or involving any personal risk. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Control run-off water by containing and keeping it out of sewers and watercourses. Contain and collect extinguishing water.
Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	No action shall be taken without appropriate training or involving any personal risk. Follow precautions for safe handling described in this safety data sheet. Keep unnecessary and unprotected personnel away from the spillage. Provide adequate ventilation. Avoid inhalation of vapours and contact with skin and eyes. Do not touch or walk into spilled material. No smoking, sparks, flames or other sources of ignition near spillage.

6.2. Environmental precautions

Environmental precautions	Avoid the spillage or runoff entering drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	Avoid the spillage or runoff entering drains, sewers or watercourses. Absorb spillage with inert, damp, non-combustible material. Collect and place in suitable waste disposal containers and seal securely. Clean contaminated objects and areas thoroughly, observing environmental regulations.

6.4. Reference to other sections

Reference to other sections	Wear protective clothing as described in Section 8 of this safety data sheet. Collect and dispose of spillage as indicated in Section 13.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions

Handle all packages and containers carefully to minimise spills. Wear protective clothing as described in Section 8 of this safety data sheet. Provide adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid inhalation of vapours and contact with skin and eyes. Take precautionary measures against static discharges.

Advice on general occupational hygiene

Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Eye wash facilities and emergency shower must be available when handling this product.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions

Store in tightly-closed, original container in a dry, cool and well-ventilated place. Avoid excessive heat for prolonged periods of time. Keep at temperature not exceeding 29°C. Do not store for more than 12 months.

7.3. Specific end use(s)

Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Ingredient comments

No exposure limits known for ingredient(s).

DNEL

Workers - Inhalation; Long term systemic effects: 7.9 mg/m³
Workers - Dermal; Long term systemic effects: 2.25 mg/kg

PNEC

- Fresh water; 0.1 mg/l
- marine water; 0.01 mg/l
- Intermittent release; 1 mg/l
- Sediment (Freshwater); 6.95 mg/kg
- Sediment (Marinewater); 0.695 mg/kg
- Soil; 1.26 mg/kg
- STP; 590 mg/l

8.2. Exposure controls

Protective equipment

Appropriate engineering controls

Provide adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimise worker exposure. Avoid inhalation of vapours and contact with skin and eyes. Eye wash facilities and emergency shower must be available when handling this product.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with European Standard EN166. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Chemical splash goggles and face shield.

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Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. To protect hands from chemicals, gloves should comply with European Standard EN374. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. For exposure up to 8 hours, wear gloves made of the following material: Butyl rubber. FKM Protective gloves should have a minimum thickness of 0.7 mm. The selected gloves should have a breakthrough time of at least 0.5 hours. Rubber (natural, latex). Chloroprene rubber. Thickness: 0.5 mm Nitrile rubber. Thickness: 0.4 mm Polyvinyl chloride (PVC). Thickness: 0.7 mm Frequent changes are recommended.
Other skin and body protection	Wear appropriate clothing to prevent any possibility of skin contact.
Hygiene measures	Wash at the end of each work shift and before eating, smoking and using the toilet. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Care should be taken to avoid contact with contaminants when removing contaminated clothing. Wash contaminated clothing before reuse.
Respiratory protection	Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. If ventilation is inadequate, suitable respiratory protection must be worn. Wear a respirator fitted with the following cartridge: Gas filter, type A2.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Colourless. to Yellow.
Odour	Amine.
Odour threshold	No information available.
pH	pH (diluted solution): 11.3 (100g/l at 20C)
Melting point	-2°C
Initial boiling point and range	198°C @ 760 mm Hg
Flash point	92°C Pensky-Martens closed cup.
Evaporation rate	No information available.
Upper/lower flammability or explosive limits	No information available.
Vapour pressure	0.4 mbar @ 20°C
Vapour density	No information available.
Relative density	1.03 @ 20°C
Solubility(ies)	Soluble in water. 145.8 g/l water @ 25°C Calculation method.
Partition coefficient	log Kow: -0.19 OECD 107
Auto-ignition temperature	Based on available data the classification criteria are not met.

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Decomposition Temperature	225°C
Viscosity	1.89 mPa s @ 20°C 1.33 mPa s @ 40°C 1.83 cSt @ 20°C 1.30 mm2/s @ 40°C
Explosive properties	Not considered to be explosive.
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

Molecular weight	82.11 g/mol

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	There are no known reactivity hazards associated with this product.

10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Reactions with the following materials may generate heat: Strong acids.

10.4. Conditions to avoid

Conditions to avoid	Avoid excessive heat for prolonged periods of time. Keep at temperature not exceeding 29°C.

10.5. Incompatible materials

Materials to avoid	Avoid contact with the following materials: Strong acids.

10.6. Hazardous decomposition products

Hazardous decomposition products	Thermal decomposition or combustion products may include the following substances: Carbon dioxide (CO2). Carbon monoxide (CO). Nitrous gases (NOx).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	1,144.0
Species	Rat
Notes (oral LD_{50})	LD_{50} ~ 1144 mg/kg, Oral, Rat
ATE oral (mg/kg)	1,144.0

Acute toxicity - dermal

Notes (dermal LD_{50})	LD_{50} > 400 - < 640 mg/kg, Dermal, Rabbit
ATE dermal (mg/kg)	700.0

Acute toxicity - inhalation

Notes (inhalation LC_{50})	LC_0 (8h) >1350 mg/m³, Inhalation, Rat

Skin corrosion/irritation

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Skin corrosion/irritation	Causes severe burns. Corrosive to skin. Rabbit

Serious eye damage/irritation

Serious eye damage/irritation	Causes serious eye damage. Corrosive Irreversible effect. Rabbit

Respiratory sensitisation

Respiratory sensitisation	No information available.

Skin sensitisation

Skin sensitisation	No information available.

Germ cell mutagenicity

Genotoxicity - in vitro	This substance has no evidence of mutagenic properties.
Genotoxicity - in vivo	This substance has no evidence of mutagenic properties.

Carcinogenicity

Carcinogenicity	No information available.

Reproductive toxicity

Reproductive toxicity - fertility	No evidence of reproductive toxicity in animal studies.
Reproductive toxicity - development	No evidence of reproductive toxicity in animal studies.

Specific target organ toxicity - single exposure

STOT - single exposure	Based on available data the classification criteria are not met.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure	Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard

Aspiration hazard	Not applicable.

Inhalation	Gas or vapour in high concentrations may irritate the respiratory system. Prolonged inhalation of high concentrations may damage respiratory system.
Ingestion	Causes severe burns. May cause chemical burns in mouth, oesophagus and stomach. Harmful if swallowed.
Skin contact	Toxic in contact with skin. Causes severe burns. May cause serious chemical burns to the skin.
Eye contact	Causes serious eye damage. May cause chemical eye burns. May cause permanent damage if eye is not immediately irrigated.

SECTION 12: Ecological information

Ecotoxicity	However, large or frequent spills may have hazardous effects on the environment. Not regarded as dangerous for the environment. The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

12.1. Toxicity

Toxicity	The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

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Acute aquatic toxicity

Acute toxicity - fish	LC_{50}, 96 hours: > 100 - < 215 mg/l, Leuciscus idus (Golden orfe)
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 267.9 mg/l, Daphnia magna
Acute toxicity - aquatic plants	ErC50, 72 hours: 180.7 mg/l, Scenedesmus subspicatus
Acute toxicity - microorganisms	EC10, 17 hour: 589.6 mg/l, Pseudomonoas putida

12.2. Persistence and degradability

Persistence and degradability	The product is not readily biodegradable.
Biodegradation	Activated sludge - Degradation 0 - 10%: 28 day OECD 301F Activated sludge - Degradation 0 - 10%: 20 day OECD 302B

12.3. Bioaccumulative potential

Bioaccumulative potential	The product does not contain any substances expected to be bioaccumulating.
Partition coefficient	log Kow: -0.19 OECD 107

12.4. Mobility in soil

Mobility	The product is soluble in water.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

Other adverse effects	Not determined.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information	Waste is classified as hazardous waste. Do not puncture or incinerate, even when empty. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.
Disposal methods	Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID)	2922
UN No. (IMDG)	2922
UN No. (ICAO)	2922
UN No. (ADN)	2922

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	CORROSIVE LIQUID, TOXIC, N.O.S. (1-METHYLIMIDAZOLE)
Proper shipping name (IMDG)	CORROSIVE LIQUID, TOXIC, N.O.S. (1-METHYLIMIDAZOLE)

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Proper shipping name (ICAO) CORROSIVE LIQUID, TOXIC, N.O.S. (1-METHYLIMIDAZOLE)

Proper shipping name (ADN) CORROSIVE LIQUID, TOXIC, N.O.S. (1-METHYLIMIDAZOLE)

14.3. Transport hazard class(es)

ADR/RID class 8

ADR/RID subsidiary risk 6.1

ADR/RID classification code CT1

ADR/RID label 8

IMDG class 8

IMDG subsidiary risk 6.1

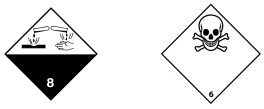
ICAO class/division 8

ICAO subsidiary risk 6.1

ADN class 8

ADN subsidiary risk 6.1

Transport labels



14.4. Packing group

ADR/RID packing group II

IMDG packing group II

ICAO packing group II

ADN packing group II

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

EmS F-A, S-B

ADR transport category 2

Hazard Identification Number (ADR/RID) 86

Tunnel restriction code (E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

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

SECTION 15: Regulatory information

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

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EU legislation

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).
Commission Regulation (EU) No 2015/830 of 28 May 2015.

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
CAS: Chemical Abstracts Service.
DNEL: Derived No Effect Level.
IATA: International Air Transport Association.
IMDG: International Maritime Dangerous Goods.
Kow: Octanol-water partition coefficient.
LC_{50}: Lethal Concentration to 50 % of a test population.
LD_{50}: Lethal Dose to 50% of a test population (Median Lethal Dose).
PBT: Persistent, Bioaccumulative and Toxic substance.
PNEC: Predicted No Effect Concentration.
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
vPvB: Very Persistent and Very Bioaccumulative.
IARC: International Agency for Research on Cancer.
MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
cATpE: Converted Acute Toxicity Point Estimate.
BCF: Bioconcentration Factor.
BOD: Biochemical Oxygen Demand.
EC_{50}: 50% of maximal Effective Concentration.
LOAEC: Lowest Observed Adverse Effect Concentration.
LOAEL: Lowest Observed Adverse Effect Level.
NOAEC: No Observed Adverse Effect Concentration.
NOAEL: No Observed Adverse Effect Level.
NOEC: No Observed Effect Concentration.
LOEC: Lowest Observed Effect Concentration.
DMEL: Derived Minimal Effect Level.
EL50: Exposure Limit 50
hPa: Hectopascal
LL50: Lethal Loading fifty
OECD: Organisation for Economic Co-operation and Development
POW: Octanol-water partition coefficient
SCBA: self-contained breathing apparatus
STP: Sewage Treatment Plant
VOC: Volatile Organic Compounds

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Classification abbreviations and acronyms	Acute Tox. = Acute toxicity Aquatic Acute = Hazardous to the aquatic environment (acute) Aquatic Chronic = Hazardous to the aquatic environment (chronic)
Key literature references and sources for data	Supplier's information.
Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	15/02/2019
Version number	3.000
Supersedes date	05/09/2016
SDS number	981
SDS status	Approved.
Hazard statements in full	H302 Harmful if swallowed. H311 Toxic in contact with skin. H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage.
Signature	Jacq Pattinson