SAFETY DATA SHEET

Revision Date: 08-25-2015 **Version** 2

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1.
Product identifier

Product Code(s):	42018248-M
Product Code(s) (DE):	- 72220000
Product Code(s) (IT):	- F47RF
Product Name	ADRANA E 202.01
Product Registration number	
Denmark	-
Norway	-
Sweden	-
EC #	Not Applicable
Pure substance/preparation	Contains 2-Aminoethanol, 2,2'-Iminodiethanol, (Ethylenedioxy)dimethanol, Morpholine, N,N-Bis(2-hydroxyethyl)oleamide

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

Recommended use	Metalworking fluid; machining
Uses advised against	Any other purpose.

1.3. Details of the supplier of the safety data sheet

Manufacturer, Importer, Supplier

Houghton plc
Beacon Road
Trafford Park
Manchester
M17 1AF
Tel: +44 (0)161 874 5000
E-mail: MSDS@uk.houghtonglobal.com

Houghton S.A.S.
604 Bd Albert Camus,
BP 60041
69652 Villefranche sur saone
France
Tel: (0) 4 74 65 65 00
Fax. (0) 4 74 60 08 44

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08210 Barbera del Valles
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Ragione Sociale: Houghton Italia S.p.A.
Indirizzo: Via Postiglione, 30
10024 Moncalieri (TO)
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Houghton Ukraine Ltd
Ukraine, Kiev 04213
13, Prirechnaya St.
Phone: +38 (044) 360-10-24
Fax: +38 (044) 426-27-76

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Bartošova 3
602 00 Brno
Czech Republic
Phone: +420 542 213 332
office@houghton.cz

Houghton Romania
2A, Jiului Street
4th Floor / Room 2
013219 Bucharest
Phone: +40 21 667 06 15
Fax: +40 21 667 09 70

Houghton Kimya San. A.Ş
Kosuyolu Mah
Asma Dall Sok
No: 1434718 Kadıköy
İstanbul
Türkiye
Phone Number: +90 216 325 15 15

1.4. Emergency telephone number

3E Company: (+)1 760 476 3961 (Code 333938)

Austria	Notfall-Telefonnummer +43 (0) 1 406 4343
Belgium	Telefoonnummer voor +32 (0)70 245 245
Bulgaria	Телефон за спешни случаи +359 2 9154 409
Croatia	Telefon za izvanredna stanja +385 1 2348 342
Czech Republic	Telefonní číslo pro naléhavé situace +420 224 919 293
Denmark	Ring til Giftlinjen på +45 82 12 12 12
Estonia	Mürgistusteabekeskuse +372 626 93 90
Finland	Hätäpuhelinnumero +358 09 471 977
France	Numéro d'appel d'urgence +33 (0)1 45 42 5959
Hungary	Díjmentesen hívható zöld szám +36 80 20 11 99
Ireland	Emergency telephone number +353 01 809 2166
Latvia	Valsts Toksikoloģijas centra Saindēšanās un zāļu informācijas centrs +371 6704 2473
Lithuania	Neatidėliotina informacija apsinuodijus +370 5 236 20 52
Netherlands	Telefoonnummer voor +31 30 274 88 88
Norway	Nødnummer +47 22 59 13 00
Poland	112
Portugal	Número de telefone de emergência +351 808 250 143
Romania	Număr de telefon care poate fi apelat în caz de urgenţă +021 318 36 06 (08:00-15:00)
Slovakia	Národné toxikologické informačné centrum +421 2 5477 4166
Spain	Número de teléfono de emergencia +34 91 562 0420
Sweden	Telefonnummer för nödsituationer +46 08 33 12 31 (09:00-17:00)
Switzerland	145; 041 44 251 51 51 (www.toxi.ch)
Turkey	(+)1 760 476 3959 (Code 333938)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Skin corrosion/irritation	Category 1 Sub-category B - (H314)
Serious eye damage/eye irritation	Category 1 - (H318)
Chronic aquatic toxicity	Category 3 - (H412)

Contains Sodium benzothiazol-2-yl sulphide May produce an allergic reaction.

2.2. Label Elements

Contains 2-Aminoethanol, 2,2'-Iminodiethanol, (Ethylenedioxy)dimethanol, Morpholine, N,N-Bis(2-hydroxyethyl)oleamide

Signal Word
DANGER

Hazard Statements
H314 - Causes severe skin burns and eye damage
H412 - Harmful to aquatic life with long lasting effects Contains Sodium benzothiazol-2-yl sulphide May produce an allergic reaction.

Precautionary Statements - EU (§28, 1272/2008)
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P501 - Dispose of contents/ container to an approved waste disposal plant

2.3. Other hazards
No information available

- 1.96375 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
- 5.16948 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
- 7.14825 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
- 4.66275 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
- 6.9955 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances / 3.2. Mixtures

This product is a mixture. Health hazard information is based on its ingredients

Chemical Name	EC-No	CAS-No	Weight %	Classification (Reg. 1272/2008)	REACH Registration Number
Highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C)	-	-	2.5% - 10%	Asp. Tox. 1 (H304) (EUH066)	-
2-Aminoethanol	205-483-3	141-43-5	2.5% - 10%	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Skin Corr. 1B (H314) Acute Tox. 4 (H332) STOT SE 3 (H335) C >= 5%.	01-2119486455-28-xxxx
Neutralised boric acid	-	10043-35-3*	2.5% - 10%	Repr. 1B (H360FD)	01-2119486683-25-xxxx
2,2'-Iminodiethanol	203-868-0	111-42-2	2.5% - 10%	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) STOT RE 2 (H373) Aquatic Chronic 3 (H412)	01-2119488930-28-xxxx
(Ethylenedioxy)dimethanol	222-720-6	3586-55-8	2.5% - 10%	Acute Tox. 4 (H302)	no data available

				Skin Irrit. 2 (H315) Eye Dam. 1 (H318)	
Morpholine	203-815-1	110-91-8	1% - 2.5%	Acute Tox. 4 (H302) Acute Tox. 3 (H311) Skin Corr. 1B (H314) Flam. Liq. 3 (H226) Acute Tox. 3 (H331)	01-2119496057-30-xxxx
N,N-Bis(2-hydroxyethyl)oleamide	202-281-7	93-83-4	1% - 2.5%	Skin Irrit. 2 (H315) Eye Dam. 1 (H318)	no data available
Neutralised 2-Aminoethanol	205-483-3	141-43-5*	1% - 2.5%	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332)	01-2119486455-28-xxxx
Sodium benzothiazol-2-yl sulphide	219-660-8	2492-26-4	0% - 1%	Met. Corr. 1 (H290) Skin Corr. 1C (H314) Skin Sens. 1 (H317) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	01-2119493018-35-xxxx
Pyridine-2-thiol 1-oxide, sodium salt	223-296-5	3811-73-2	0% - 1%	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	no data available

Additional information

SVHC ...Contains... BORIC ACID Concentration: < 5,5% See Section 15 for additional information on base oils.

** Substances for which there are Community workplace exposure limits

Full text of H- and EUH-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first-aid measures

General advice Immediate medical attention is required. Do not get in eyes, on skin, or on clothing. May produce an allergic reaction.

Inhalation Move to fresh air.

Skin contact IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. Immediate medical attention is required. May cause an allergic skin reaction.

Eye contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Seek immediate medical attention/advice.

Ingestion Clean mouth with water and afterwards drink plenty of water. Do not induce vomiting without medical advice.

Protection of First-aiders Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

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

Main Symptoms Causes burns, blistering, May cause allergic skin reaction

4.3. Indication of immediate medical attention and special treatment needed

Notes to physician May cause sensitization of susceptible persons. Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment:, Use CO2, dry chemical, or foam, Water spray or fog

Extinguishing media which shall not be used for safety reasons
None

5.2. Special hazards arising from the substance or mixture

Special Hazard
Water runoff can cause environmental damage.

Hazardous Decomposition Products
None under normal use

5.3. Advice for firefighters

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Evacuate personnel to safe areas.

Advice for non-emergency personnel Evacuate personnel to safe areas. Material can create slippery conditions.

Advice for emergency responders For personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and materials for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Dike to collect large liquid spills.

6.4. Reference to other sections

See Section 8/12/13 for additional information

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Remove and wash contaminated clothing before re-use. Ensure adequate ventilation. Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep at temperatures between 5 and 40 °C.

Recommended Shelf Life
Shelf life 12 months.

Incompatible Materials
Strong oxidizing agents, Strong acids, Strong bases

7.3. Specific end uses

Specific use(s) Metalworking fluid; machining

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Chemical Name	European Union	United Kingdom	France	Spain
Highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C)				VLA-EC: 10 mg/m³ VLA-ED: 5 mg/m³
2-Aminoethanol	TWA: 1 ppm TWA: 2.5 mg/m³ Skin	STEL: 3 ppm STEL: 7.6 mg/m³ TWA: 1 ppm TWA: 2.5 mg/m³ Skin	TWA: 1 ppm TWA: 2.5 mg/m³ STEL: 3 ppm STEL: 7.6 mg/m³	S* STEL: 3 ppm STEL: 7.5 mg/m³ TWA: 1 ppm TWA: 2.5 mg/m³
2,2'-Iminodiethanol			TWA: 3 ppm TWA: 15 mg/m³	S* TWA: 0.46 ppm TWA: 2 mg/m³
Morpholine	TWA: 10 ppm TWA: 36 mg/m³	STEL: 20 ppm STEL: 72 mg/m³ TWA: 10 ppm TWA: 36 mg/m³ Skin	TWA: 10 ppm TWA: 36 mg/m³ STEL: 20 ppm STEL: 72 mg/m³	STEL: 20 ppm STEL: 72 mg/m³ TWA: 10 ppm TWA: 36 mg/m³
Neutralised 2-Aminoethanol	TWA: 1 ppm TWA: 2.5 mg/m³ Skin	STEL: 3 ppm STEL: 7.6 mg/m³ TWA: 1 ppm TWA: 2.5 mg/m³ Skin	VME: 1 ppm VME: 2.5 mg/m³ VLCT: 3 ppm VLCT: 7.6 mg/m³	S* STEL: 3 ppm STEL: 7.5 mg/m³ TWA: 1 ppm TWA: 2.5 mg/m³

Chemical Name	Germany	Italy	Portugal	The Netherlands
2-Aminoethanol	TWA: 2 ppm TWA: 5.1 mg/m³ Ceiling / Peak: 4 ppm Ceiling / Peak: 10.2 mg/m³	TWA: 1 ppm TWA: 2.5 mg/m³ STEL: 3 ppm STEL: 7.6 mg/m³ Skin	STEL: 6 ppm TWA: 3 ppm	Skin STEL: 7.6 mg/m³ TWA: 2.5 mg/m³
Neutralised boric acid	TWA: 0.5 mg/m³		STEL: 6 mg/m³ TWA: 2 mg/m³	
2,2'-Iminodiethanol	TWA: 1 mg/m³ Ceiling / Peak: 1 mg/m³ Skin		TWA: 2 mg/m³	
Morpholine	TWA: 10 ppm TWA: 36 mg/m³ Ceiling / Peak: 20 ppm Ceiling / Peak: 72 mg/m³	TWA: 10 ppm TWA: 36 mg/m³ STEL: 20 ppm STEL: 72 mg/m³	TWA: 20 ppm	Skin STEL: 72 mg/m³ TWA: 36 mg/m³

		Skin		
Neutralised 2-Aminoethanol	MAK: 2 ppm MAK: 5.1 mg/m³ Ceiling / Peak: 4 ppm Ceiling / Peak: 10.2 mg/m³ TWA: 2 ppm TWA: 5.1 mg/m³	TWA: 1 ppm TWA: 2.5 mg/m³ STEL: 3 ppm STEL: 7.6 mg/m³ Skin	STEL: 6 ppm TWA: 3 ppm	Skin STEL: 7.6 mg/m³ TWA: 2.5 mg/m³
Pyridine-2-thiol 1-oxide, sodium salt	TWA: 1 mg/m³ Ceiling / Peak: 2 mg/m³ Skin			

Chemical Name	Austria	Switzerland	Poland	Ireland
Highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C)				STEL: 10 mg/m³ TWA: 5 mg/m³ (Mist)
2-Aminoethanol	Skin STEL 3 ppm STEL 7.6 mg/m³ TWA: 1 ppm TWA: 2.5 mg/m³	STEL: 4 ppm STEL: 10 mg/m³ TWA: 2 ppm TWA: 5 mg/m³	STEL: 7.5 mg/m³ TWA: 2.5 mg/m³	TWA: 1 ppm TWA: 2.5 mg/m³ STEL: 3 ppm STEL: 7.6 mg/m³ Skin
2,2'-Iminodiethanol	Skin STEL 0.92 ppm STEL 4 mg/m³ TWA: 0.46 ppm TWA: 2 mg/m³	Skin STEL: 1 mg/m³ TWA: 1 mg/m³	TWA: 9 mg/m³	TWA: 1 mg/m³
Morpholine	Skin STEL 10 ppm STEL 36 mg/m³ TWA: 10 ppm TWA: 36 mg/m³ Ceiling 10 ppm Ceiling 36 mg/m³	Skin STEL: 20 ppm STEL: 72 mg/m³ TWA: 10 ppm TWA: 36 mg/m³	STEL: 72 mg/m³ TWA: 36 mg/m³	TWA: 10 ppm TWA: 36 mg/m³ STEL: 20 ppm STEL: 72 mg/m³ Skin
Neutralised 2-Aminoethanol	Skin STEL 3 ppm STEL 7.6 mg/m³ MAK: 1 ppm MAK: 2.5 mg/m³	STEL: 4 ppm STEL: 10 mg/m³ MAK: 2 ppm MAK: 5 mg/m³	NDSCh: 7.5 mg/m³ NDS: 2.5 mg/m³	TWA: 3 ppm TWA: 8 mg/m³ STEL: 6 ppm STEL: 15 mg/m³
Pyridine-2-thiol 1-oxide, sodium salt	Skin STEL 4 mg/m³ MAK: 1 mg/m³	Skin STEL: 2 mg/m³ TWA: 1 mg/m³		

Chemical Name	Finland	Denmark	Norway	Sweden
Highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C)	TWA: 5mg/m³ (Öljysumu)	TWA: 1 mg/m³ (Olietåge)	TWA: 1 mg/m³ (Oljetåke)	LLV: 1 mg/m³ STV: 3 mg/m³ (Oljedimma)
2-Aminoethanol	TWA: 1 ppm TWA: 2.5 mg/m³ STEL: 3 ppm STEL: 7.6 mg/m³ Skin	TWA: 1 ppm TWA: 2.5 mg/m³ Skin	TWA: 1 ppm TWA: 2.5 mg/m³ Skin STEL: 2 ppm STEL: 5 mg/m³	LLV: 3 ppm LLV: 8 mg/m³ H STV: 6 ppm STV: 15 mg/m³
2,2'-Iminodiethanol	TWA: 0.46 ppm TWA: 2 mg/m³ Skin	TWA: 0.46 ppm TWA: 2 mg/m³ Skin	TWA: 3 ppm TWA: 15 mg/m³ STEL: 6 ppm STEL: 22.5 mg/m³	LLV: 3 ppm LLV: 15 mg/m³ H STV: 6 ppm STV: 30 mg/m³
Morpholine	TWA: 10 ppm TWA: 36 mg/m³ STEL: 20 ppm STEL: 72 mg/m³ Skin	TWA: 10 ppm TWA: 36 mg/m³ Skin	TWA: 10 ppm TWA: 36 mg/m³ Skin STEL: 20 ppm STEL: 54 mg/m³	LLV: 10 ppm LLV: 35 mg/m³ H STV: 15 ppm STV: 50 mg/m³
Neutralised 2-Aminoethanol	TWA: 1 ppm TWA: 2.5 mg/m³ STEL: 3 ppm STEL: 7.6 mg/m³ Skin	TWA: 1 ppm TWA: 2.5 mg/m³ Skin	TWA: 1 ppm TWA: 2.5 mg/m³ Skin STEL: 2 ppm STEL: 5 mg/m³	LLV: 3 ppm LLV: 8 mg/m³ H STV: 6 ppm STV: 15 mg/m³
Pyridine-2-thiol 1-oxide, sodium salt		TWA: 1 mg/m³ Skin		

Chemical Name	Czech Republic	Hungary	Bulgaria	Romania
2-Aminoethanol	Ceiling: 7.5 mg/m³ TWA: 5 mg/m³ Skin	STEL: 7.6 mg/m³ TWA: 2.5 mg/m³ Skin	STEL: 7.6 mg/m³ TWA: 2.5 mg/m³ Skin	TWA: 1 ppm TWA: 2.5 mg/m³ STEL: 3 ppm STEL: 7.6 mg/m³ Skin
Neutralised boric acid			TWA: 5.0 mg/m³	
2,2'-Iminodiethanol	Ceiling: 10 mg/m³ TWA: 5 mg/m³		TWA: 10.0 mg/m³	
Morpholine	Ceiling: 70 mg/m³ TWA: 35 mg/m³ Skin	STEL: 72 mg/m³ TWA: 36 mg/m³ Skin	STEL: 72.0 mg/m³ STEL: 20 ppm TWA: 36.0 mg/m³ TWA: 10 ppm	TWA: 10 ppm TWA: 36 mg/m³ STEL: 20 ppm STEL: 72 mg/m³
Neutralised 2-Aminoethanol	Ceiling: 7.5 mg/m³ TWA: 5 mg/m³ Skin	STEL: 7.6 mg/m³ TWA: 2.5 mg/m³ Skin	STEL: 15.0 mg/m³ TWA: 8.0 mg/m³	TWA: 1 ppm TWA: 2.5 mg/m³ STEL: 3 ppm STEL: 7.6 mg/m³ Skin

Hydrocarbon solvent vapor mixtures which do not have substance specific occupational exposure limits may be evaluated by the Reciprocal Calculation Procedure (RCP) which assigns a recommended occupational exposure limit based on the mass composition and hydrocarbon group guidance values (GGVs). Applicable recommended occupational exposure limits are shown in the table below.

Chemical Name	RCP OEL	Manufacturer
Distillates (petroleum), hydrotreated middle 64742-46-7	RCP: TWA 1200 mg/m³ 143ppm	

Workers Systemic toxicity

Chemical Name	Long term - Oral exposure	Long term - Dermal exposure	Long term - Inhalation exposure	Short term - Oral Exposure	Short term - Dermal exposure	Short term - Inhalation exposure
2,2'-Iminodiethanol		0.13 mg/kg				
Morpholine		1.04 mg/kg	91 mg/m³			

Workers Local effects

Chemical Name	Long term - Oral exposure	Long term - Dermal exposure	Long term - Inhalation exposure	Short term - Oral Exposure	Short term - Dermal exposure	Short term - Inhalation exposure
2,2'-Iminodiethanol			1 mg/m³			
Morpholine			36 mg/m³			72 mg/m³

Consumers Systemic toxicity

Chemical Name	Long term - Oral exposure	Long term - Dermal exposure	Long term - Inhalation exposure	Short term - Oral Exposure	Short term - Dermal exposure	Short term - Inhalation exposure
2,2'-Iminodiethanol	0.06 mg/kg	0.07 mg/kg				
Morpholine	6.3 mg/kg	0.52 mg/kg	45 mg/m³	38 mg/kg		

Consumers Local effects

Chemical Name	Long term - Oral exposure	Long term - Dermal exposure	Long term - Inhalation exposure	Short term - Oral Exposure	Short term - Dermal exposure	Short term - Inhalation exposure
2,2'-Iminodiethanol			0.25 mg/m³			
Morpholine			3.2 mg/m³			18 mg/m³

Predicted No Effect Concentration (PNEC)

Chemical Name	Fresh water	Sea water	Fresh water sediment	Sea sediment	Soil
2,2'-Iminodiethanol	0.0022 mg/L	0.00022 mg/L	0.012 mg/kg	0.0012 mg/kg	0.0011 mg/kg
Morpholine	0.1 mg/L	0.01 mg/L	1.49 mg/kg	0.149 mg/kg	0.239 mg/kg

8.2. Exposure controls

Engineering Measures Ensure adequate ventilation, especially in confined areas. Showers. Eyewash stations.

Personal protective equipment

Eye Protection Tightly fitting safety goggles. Eye protection must conform to standard EN 166.

Hand Protection Protective gloves complying with EN 374. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Skin and body protection Long sleeved clothing.

Respiratory protection No special protective equipment required. In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.

Hygiene measures Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Remove and wash contaminated clothing before re-use. Regular cleaning of equipment, work area and clothing is recommended. Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice.

Environmental Exposure Controls Do not allow material to contaminate ground water system.

Thermal hazards None under normal use conditions

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state @20°C	liquid	**Appearance**	cloudy, light amber
Odor	Characteristic	**Odor Threshold**	Not Applicable

Property	Values	Note
pH	= 9.75	
Melting Point / Freezing Point	No information available	
Boiling point/boiling range	> 100 °C / > 212 °F	
Flash point	No information available	
Evaporation rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limits in Air		
upper flammability limit	No information available	
Lower flammability limit	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Relative density	1.032	g/cm3 @15.5°C
Solubility(ies)	Soluble in water	
Partition coefficient: n-octanol/water	Not Applicable	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Viscosity, kinematic	> 25 cSt @ 40 °C	ASTM D 445
Explosive properties	Not Applicable	
Oxidizing Properties	Not Applicable	

9.2 Other information

Viscosity, kinematic (100°C)	No information available
Pour point	No information available
VOC Content (ASTM E-1868-10)	No information available
VOC Content	No information available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None under normal use conditions

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

None under normal use conditions

10.4. Conditions to avoid

Do not freeze

10.5. Incompatible Materials

Strong oxidizing agents, Strong acids, Strong bases

10.6. Hazardous decomposition products

None under normal use conditions

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information - Principle Routes of Exposure

Inhalation	None known
Eye contact	May result in permanent damage including blindness
Skin contact	Corrosive; Repeated or prolonged skin contact may cause allergic reactions with susceptible persons
Ingestion	Ingestion causes burns of the upper digestive and respiratory tracts

Acute toxicity - Product Information

Product does not present an acute toxicity hazard based on known information.

Acute toxicity - Component Information

Chemical Name	LD50 Oral (Rat)	LD50 Dermal (Rat/Rabbit)	LC50 Inhalation
Highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C)	>2000 mg/kg	>2000 mg/kg	
2-Aminoethanol	1720 mg/kg (Rat)	= 1 mL/kg (Rabbit) = 1025 mg/kg (Rabbit)	
Neutralised boric acid	3500 mg/kg (Rat)		
2,2'-Iminodiethanol	1100 mg/kg (Rat)		
(Ethylenedioxy)dimethanol		>2000 mg/kg (Rabbit)	
Morpholine	= 1050 mg/kg (Rat)	= 310 mg/kg (Rabbit)	= 8 mg/l (Rat) (4h)

N,N-Bis(2-hydroxyethyl)oleamide	= 12400 µL/kg (Rat)		
Neutralised 2-Aminoethanol	1720 mg/kg (Rat)		
Sodium benzothiazol-2-yl sulphide	2100 mg/kg (Rat)	7940 mg/kg (Rabbit)	
Pyridine-2-thiol 1-oxide, sodium salt	1208 mg/kg (Rat)	1800 mg/kg (Rabbit)	1.08 mg/l (4h) (Rat)

Skin corrosion/irritation Corrosive. Causes burns.

Serious eye damage/eye irritation Causes severe eye damage.

Sensitization
Respiratory Sensitization None known.
Skin sensitization May cause an allergic skin reaction.

Germ Cell Mutagenicity None known.

Carcinogenicity None known.

Reproductive toxicity Contains a known or suspected reproductive toxin.

Specific target organ systemic toxicity (single exposure) None known

Specific target organ systemic toxicity (repeated exposure) None known

Aspiration hazard None known.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
2-Aminoethanol	15: 72 h Desmodesmus subspicatus mg/L EC50	227: 96 h Pimephales promelas mg/L LC50 flow-through 3684: 96 h Brachydanio rerio mg/L LC50 static 300 - 1000: 96 h Lepomis macrochirus mg/L LC50 static 114 - 196: 96 h Oncorhynchus mykiss mg/L LC50 static 200: 96 h Oncorhynchus mykiss mg/L LC50 flow-through		65: 48 h Daphnia magna mg/L EC50
Neutralised boric acid	>28: 72 h Selenastrum capricornutum mg/L EC50	1020: 72 h Carassius auratus mg/L LC50 flow-through 627: 96 h Oncorhynchus tschawytscha mg/L LC50		115 - 153: 48 h Daphnia magna mg/L EC50
2,2'-Iminodiethanol	2.2: 96 h Pseudokirchnerella subcapitata mg/L EC50	1370 - 1550: 96 h Pimephales promelas mg/L LC50		30.1 - 89.9: 48 h Daphnia magna mg/L EC50
Morpholine	58: 96 h Pseudokirchneriella subcapitata mg/L EC50	179: 96 h Valamugil engeli mg/L LC50 180: 96 h Oncorhynchus mykiss mg/L LC50		45: 48 h Daphnia magna mg/L EC50
Neutralised 2-Aminoethanol	15: 72 h Desmodesmus subspicatus mg/L EC50	227: 96 h Pimephales promelas mg/L LC50 flow-through 3684: 96 h Brachydanio rerio mg/L		65: 48 h Daphnia magna mg/L EC50

		LC50 static 300-1000: 96 h Lepomis macrochirus mg/L LC50 static 114-196: 96 h Oncorhynchus mykiss mg/L LC50 static 200: 96 h Oncorhynchus mykiss mg/L LC50 flow-through		
Sodium benzothiazol-2-yl sulphide	0.3: 96 h Pseudokirchneriella subcapitata mg/L EC50 0.4: 72 h Selenastrum capricornutum mg/L EC50	0.3 - 1.1: 96 h Oncorhynchus mykiss mg/L LC50 static 3.8: 96 h Lepomis macrochirus mg/L LC50 static 1.8: 96 h Oncorhynchus mykiss mg/L LC50		1.9 - 5.1: 48 h Daphnia magna mg/L EC50 Static 9.5: 48 h Daphnia magna mg/L EC50
Pyridine-2-thiol 1-oxide, sodium salt	0.46: 72 h Selenastrum capricornutum mg/L EC50	0.0066: 96 h Oncorhynchus mykiss mg/L LC50		0.022: 48 h Daphnia magna mg/L EC50

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

No information available

Chemical Name	log Pow
2-Aminoethanol	-1.91
2,2'-Iminodiethanol	-2.18
Morpholine	-2.55
Sodium benzothiazol-2-yl sulphide	-0.46
Pyridine-2-thiol 1-oxide, sodium salt	-2.64

12.4. Mobility in soil

Miscible with water

12.5. Results of PBT and vPvB assessment

This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This preparation contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Other adverse effects

None known

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products Dispose of as hazardous waste in compliance with local and national regulations

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Observe all label precautions until container is cleaned, reconditioned or destroyed.

Other Data According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: TRANSPORT INFORMATION

14.1. UN-Number

UN3267

14.2. UN proper shipping name

CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.

(2-AMINOETHANOL, MORPHOLINE)

14.3. Transport hazard class

8

14.4. Packing group

II

14.5. Environmental Hazards

None

14.6. Special precautions for users

None

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

IMDG/IMO

Proper shipping name	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (2-AMINOETHANOL, MORPHOLINE)
Hazard class	8
UN No.	UN3267
Packing Group	II
EmS No.	F-A, S-B
Description	UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (2-AMINOETHANOL, MORPHOLINE), 8, II

ADR/RID

Proper shipping name	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (2-AMINOETHANOL, MORPHOLINE)
Hazard class	8
UN No.	UN3267
Packing group	II
Classification Code	C7
Description	UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (2-AMINOETHANOL, MORPHOLINE), 8, II (E)
Environmental hazard	None
ADR/RID-Labels	8
Tunnel Restriction Code	(E)

ICAO/IATA

UN No.	UN3267
Proper shipping name	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (2-AMINOETHANOL, MORPHOLINE)
Hazard class	8
Packing group	II
ERG Code	8L
Description	UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (2-AMINOETHANOL, MORPHOLINE), 8, II

SECTION 15: REGULATORY INFORMATION

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

The Classification, Labeling and Packaging of Substances and Mixtures (CLP) Regulation (EC 1272/2008)
Registration, Evaluation, Authorization, and Restriction of Chemicals (REACh) Regulation (EC 1907/2006)

Statutory Instruments: Control of Substances Hazardous to Health Regulations 2002. Chemicals (Hazard Information and Packaging) Regulations 2009.
Acts of Parliament: The Health and Safety at Work etc. Act 1974. Environment Protection Act 1990.
Regulation on classification, labeling. of hazardous chemicals (2002 changing 2005).Appendix VI to Regulation on classification, labeling etc. of hazardous chemicals (2002 changing 2010), list of hazardous substances (as amended). Guidelines for submission and declaration of hazardous waste (2009).Transport of dangerous goods: ADR, RID, IMDG and IATA. Administrative norms for pollution of the atmosphere, 2009.
Workplace exposure limits (EH40)

WGK Classification Hazard to water/Class 2

The highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C) contains one or more substance with the following CAS/EC numbers/REACH registration numbers:

Chemical Name	CAS-No	EC-No	REACH Registration Number
Distillates (petroleum), straight-run middle	64741-44-2	265-044-7	
Distillates (petroleum), heavy hydrocracked	64741-76-0	265-077-7	01-2119486951-26-xxxx
Distillates (petroleum), solvent-refined light paraffinic	64741-89-5	265-091-3	01-2119487067-30-xxxx
Distillates (petroleum), hydrotreated middle	64742-46-7	265-148-2	01-2119459347-30-xxxx
Distillates (petroleum), hydrotreated middle	64742-46-7	934-956-3	01-2119827000-58-xxxx
Distillates (petroleum), hydrotreated light	64742-47-8	265-149-8	01-2119456620-43-xxxx
Distillates (petroleum), hydrotreated light naphthenic	64742-53-6	265-156-6	01-2119480375-34-xxxx
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	265-157-1	01-2119484627-25-xxxx
Distillates (petroleum), hydrotreated light paraffinic	64742-55-8	265-158-7	01-2119487077-29-xxxx
Distillates, petroleum, solvent-dewaxed light paraffinic	64742-56-9	265-159-2	01-2119480132-48-xxxx
Distillates (petroleum), solvent-dewaxed heavy, paraffinic	64742-65-0	265-169-7	01-2119471299-27-xxxx
Paraffin oils (petroleum), catalytic dewaxed light	64742-71-8	265-176-5	
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	72623-86-0	276-737-9	01-2119474878-16-xxxx
Lubricating oils (petroleum), C20-C50, hydrotreated neutral oil-based	72623-87-1	276-738-4	01-2119474889-13-xxxx
White mineral oil (petroleum)	8042-47-5	232-455-8	01-2119487078-27-xxxx
C18-C50 branched, cyclic and linear hydrocarbons – Distillates	848301-69-9	482-220-0	01-0000020163-82-xxxx
Hydrocarbons, C14-C19, isoalkanes, cyclics, <2% aromatics	NOT AVAILABLE	920-114-2	01-2119459347-30-xxxx

15.2. Chemical Safety Assessment
No information available

SECTION 16: OTHER INFORMATION

Key or legend to abbreviations and acronyms used in the safety data sheet
Repr.-Reproduction toxicity
Asp. Tox. - Aspiration Toxicity
Acute Tox. - Acute Toxicity
Aquatic Acute - Acute Aquatic Toxicity
Aquatic Chronic - Chronic Aquatic Toxicity
Eye Dam. - Eye Damage
Eye Irrit. - Eye Irritation
Skin Corr. - Skin Corrosion
Skin Irrit. - Skin Irritation
Skin Sens. - Skin Sensitizer

Resp. Sens. - Respiratory Sensitizer
STOT SE - Specific target organ systemic toxicity (Single exposure)
STOT RE - Specific target organ systemic toxicity (repeated exposure)
VOC - Volatile organic compounds

Full text of H-Statements referred to under sections 2 and 3

• H224 - Extremely flammable liquid and vapor	• H341 - Suspected of causing genetic defects
• H225 - Highly flammable liquid and vapor	• H350 - May cause cancer
• H226 - Flammable liquid and vapor	• H351 - Suspected of causing cancer
• H270 - May cause or intensify fire; oxidizer	• H360 - May damage fertility or the unborn child
• H271 - May cause fire or explosion; strong oxidizer	• H361 - Suspected of damaging fertility or the unborn child
• H272 - May intensify fire; oxidizer	• H362 - May cause harm to breast-fed children
• H290 - May be corrosive to metals	• H370 - Causes damage to organs
• H300 - Fatal if swallowed	• H371 - May cause damage to organs
• H301 - Toxic if swallowed	• H372 - Causes damage to organs through prolonged or repeated exposure
• H302 - Harmful if swallowed	
• H304 - May be fatal if swallowed and enters airways	• H373 - May cause damage to organs through prolonged or repeated exposure
• H310 - Fatal in contact with skin	• H400 - Very toxic to aquatic life
• H311 - Toxic in contact with skin	• H410 - Very toxic to aquatic life with long lasting effects
• H312 - Harmful in contact with skin	• H411 - Toxic to aquatic life with long lasting effects
• H314 - Causes severe skin burns and eye damage	• H412 - Harmful to aquatic life with long lasting effects
• H315 - Causes skin irritation	• H413 - May cause long lasting harmful effects to aquatic life
• H317 - May cause an allergic skin reaction	• H360Df - May damage the unborn child. Suspected of damaging fertility
• H318 - Causes serious eye damage	• H360D - May damage the unborn child
• H319 - Causes serious eye irritation	• H360FD - May damage fertility. May damage the unborn child
• H330 - Fatal if inhaled	• H360F - May damage fertility
• H331 - Toxic if inhaled	• H361d - Suspected of damaging the unborn child
• H332 - Harmful if inhaled	• H361fd - Suspected of damaging fertility. Suspected of damaging the unborn child
• H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled	• H361f - Suspected of damaging fertility
• H335 - May cause respiratory irritation	• EUH066 - Repeated exposure may cause skin dryness or cracking
• H336 - May cause drowsiness or dizziness	• EUH210 - Safety data sheet available on request
• H340 - May cause genetic defects	• EUH208 - May produce an allergic reaction

Exposure scenario
No information available

Revision Date: 08-25-2015

Revision Note

Disclaimer
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