

Creation Date 13-Oct-2009

Revision Date 22-Mar-2018

Revision Number 2

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

**1.1. Product identification**

<b>Product Description:</b>	<b>Ethyl acetate</b>
<b>Cat No. :</b>	<b>22912</b>
<b>Synonyms</b>	Acetic acid ethyl ester
<b>CAS-No</b>	141-78-6
<b>EC-No.</b>	205-500-4
<b>Molecular Formula</b>	C4 H8 O2
<b>Reach Registration Number</b>	-

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

<b>Recommended Use</b>	Laboratory chemicals.
<b>Sector of use</b>	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
<b>Product category</b>	PC21 - Laboratory chemicals
<b>Process categories</b>	PROC15 - Use as a laboratory reagent
<b>Environmental release category</b>	ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
<b>Uses advised against</b>	No Information available

**1.3. Details of the supplier of the safety data sheet**

<b>Company</b>	Alfa Aesar Avocado Research Chemicals, Ltd. Shore Road Port of Heysham Industrial Park Heysham, Lancashire LA3 2XY United Kingdom Office Tel: +44 (0) 1524 850506 Office Fax: +44 (0) 1524 850608
<b>E-mail address</b>	uktech@alfa.com www.alfa.com Product Safety Department

**1.4. Emergency telephone number**

Call Carechem 24 at  
+44 (0) 1865 407333 (English only);  
+44 (0) 1235 239670 (Multi-language)

**SECTION 2: HAZARDS IDENTIFICATION**

**2.1. Classification of the substance or mixture**

**CLP Classification - Regulation (EC) No 1272/2008**

**Physical hazards**

Flammable liquids

Category 2 (H225)

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## Health hazards

Serious Eye Damage/Eye Irritation  
Specific target organ toxicity - (single exposure)

Category 2 (H319)  
Category 3 (H336)

## Environmental hazards

Based on available data, the classification criteria are not met

## 2.2. Label elements



Signal Word

Danger

## Hazard Statements

H225 - Highly flammable liquid and vapor  
H319 - Causes serious eye irritation  
H336 - May cause drowsiness or dizziness  
EUH066 - Repeated exposure may cause skin dryness or cracking

## Precautionary Statements

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
P240 - Ground/bond container and receiving equipment  
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray  
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

## 2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Ethyl acetate	141-78-6	EEC No. 205-500-4	>95	Flam. Liq. 2 (H225) Eye Irrit. 2 (H319) STOT SE 3 (H336) EUH066

Reach Registration Number	-
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Full text of Hazard Statements: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

<b>General Advice</b>	If symptoms persist, call a physician.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water.
<b>Inhalation</b>	Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

Breathing difficulties. May cause central nervous system depression: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

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

**Notes to Physician** Treat symptomatically. Symptoms may be delayed.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

#### **Suitable Extinguishing Media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### **Extinguishing media which must not be used for safety reasons**

Do not use a solid water stream as it may scatter and spread fire.

### 5.2. Special hazards arising from the substance or mixture

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

#### **Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>).

### 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

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Use personal protective equipment. Ensure adequate ventilation.

## 6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional ecological information.

## 6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

## 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

Ensure adequate ventilation. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

### 7.2. Conditions for safe storage, including any incompatibilities

Flammables area. Keep away from heat and sources of ignition. Keep container tightly closed in a dry and well-ventilated place.

### 7.3. Specific end use(s)

Use in laboratories

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### **Exposure limits**

List source(s): **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement. **IRE** - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	The United Kingdom	European Union	Ireland
Ethyl acetate	STEL: 400 ppm 15 min TWA: 200 ppm 8 hr		TWA: 200 ppm 8 hr. STEL: 400 ppm 15 min

#### **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

#### **Monitoring methods**

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

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MDHS70 General methods for sampling airborne gases and vapours

MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography

MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

**Derived No Effect Level (DNEL)** See table for values

<u>Route of exposure</u>	<b>Acute effects (local)</b>	<b>Acute effects (systemic)</b>	<b>Chronic effects (local)</b>	<b>Chronic effects (systemic)</b>
<b>Oral</b>				
<b>Dermal</b>				63 mg/kg bw/d
<b>Inhalation</b>	1468 mg/m <sup>3</sup> 400 ppm	1468 mg/m <sup>3</sup> 400 ppm	734 mg/m <sup>3</sup> 200 ppm	734 mg/m <sup>3</sup> 200 ppm

**Predicted No Effect Concentration (PNEC)** See values below.

<b>Fresh water</b>	0.26 mg/l
<b>Fresh water sediment</b>	0.34 mg/kg
<b>Marine water</b>	0.026 mg/l
<b>Marine water sediment</b>	0.034 mg/kg
<b>Microorganisms in sewage treatment</b>	650 mg/l
<b>Soil (Agriculture)</b>	0.22 mg/kg dw

## 8.2. Exposure controls

### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

**Eye Protection** Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

<b>Glove material</b>	<b>Breakthrough time</b>	<b>Glove thickness</b>	<b>EU standard</b>	<b>Glove comments</b>
Butyl rubber	> 120 minutes	0.5 - 0.7 mm	EN 374 Level 4	Permeation rate 8 µg/cm <sup>2</sup> /min As tested under EN374-3 Determination of Resistance to Permeation by Chemicals
Nitrile rubber	< 200 minutes			
PVA	> 360 minutes	0.3 mm		
Nitrile rubber	< 30 minutes	0.38 mm		

**Skin and body protection** Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.

(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Respiratory Protection** No protective equipment is needed under normal use conditions.

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**Large scale/emergency use** Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Small scale/Laboratory use** Maintain adequate ventilation

**Environmental exposure controls** No information available.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	Colorless	
<b>Physical State</b>	Liquid	
<b>Odor</b>	sweet	
<b>Odor Threshold</b>	50 ppm	
<b>pH</b>	No information available	
<b>Melting Point/Range</b>	-83.5 °C / -118.3 °F	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	75 - 78 °C / 167 - 172.4 °F	
<b>Flash Point</b>	-4 °C / 24.8 °F	<b>Method</b> - Closed cup (Butyl Acetate = 1.0) Liquid
<b>Evaporation Rate</b>	6.2	
<b>Flammability (solid,gas)</b>	Not applicable	
<b>Explosion Limits</b>	<b>Lower</b> 2 Vol% <b>Upper</b> 12 Vol%	
<b>Vapor Pressure</b>	103 mbar @ 20°C	
<b>Vapor Density</b>	3.04	(Air = 1.0) @ 20 °C
<b>Specific Gravity / Density</b>	0.902	Liquid 20 °C
<b>Bulk Density</b>	Not applicable	
<b>Water Solubility</b>	80 g/l	
<b>Solubility in other solvents</b>	Miscible Alcohol acetone	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Component</b>	<b>log Pow</b>	
Ethyl acetate	0.6	
<b>Autoignition Temperature</b>	427 °C / 800.6 °F	
<b>Decomposition Temperature</b>	No data available	
<b>Viscosity</b>	0.45 cP @ 20 °C	Dynamic
<b>Explosive Properties</b>	Not explosive	Vapors may form explosive mixtures with air
<b>Oxidizing Properties</b>	Not oxidising	(based on the chemical structure of the substance and oxidation states of the constituent elements)

### 9.2. Other information

<b>Molecular Formula</b>	C4 H8 O2
<b>Molecular Weight</b>	88.11
<b>Surface tension</b>	24 mN/m @ 20°C

## SECTION 10: STABILITY AND REACTIVITY

**10.1. Reactivity** None known, based on information available

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

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### 10.3. Possibility of hazardous reactions

**Hazardous Polymerization** Hazardous polymerization does not occur.  
**Hazardous Reactions** None under normal processing.

### 10.4. Conditions to avoid

Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.

### 10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Amines. Peroxides.

### 10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

#### Product Information

#### (a) acute toxicity;

**Oral** Based on available data, the classification criteria are not met  
**Dermal** Based on available data, the classification criteria are not met  
**Inhalation** Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethyl acetate	10,200 mg/kg ( Rat )	> 20 mL/kg ( Rabbit ) > 18000 mg/kg ( Rabbit )	58 mg/l (rat; 8 h)

#### (b) skin corrosion/irritation;

**Test method** Based on available data, the classification criteria are not met  
 OECD Test Guideline 404  
**Test species** rabbit  
**Observational endpoint** No skin irritation

#### (c) serious eye damage/irritation;

**Test method** Category 2  
 OECD Test Guideline 405  
**Test species** rabbit eye  
**Observation end point** Irritating to eyes

#### (d) respiratory or skin sensitization;

**Respiratory** Based on available data, the classification criteria are not met  
**Skin** Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
Ethyl acetate 141-78-6 ( >95 )	OECD Test Guideline 406	guinea pig	- non-sensitising

#### (e) germ cell mutagenicity;

Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
Ethyl acetate 141-78-6 ( >95 )	OECD Test Guideline 471 AMES test	in vitro Bacteria	negative
	OECD Test Guideline 473 Chromosomal aberration assay	in vitro Mammalian	negative
	OECD Test Guideline 476	in vitro	negative

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	Gene cell mutation ----- OECD Test Guideline 474 Mouse micronucleus assay	Mammalian ----- in vivo Mammalian	----- negative
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**(f) carcinogenicity;** Based on available data, the classification criteria are not met  
There are no known carcinogenic chemicals in this product

**(g) reproductive toxicity;** Based on available data, the classification criteria are not met

Component	Test method	Test species / Duration	Study result
Ethyl acetate 141-78-6 (>95)	OECD Test Guideline 416 OECD Test Guideline 414	Oral mouse 2 Generation Inhalation rat	NOAEL = 26400 mg/kg bw/day NOAEC = 73300 mg/m <sup>3</sup>

**(h) STOT-single exposure;** Category 3  
**Results / Target organs** Central nervous system (CNS).

**(i) STOT-repeated exposure;** Based on available data, the classification criteria are not met

<b>Test method</b>	EPA OTS 795.2600	EPA OTS 798.2450
<b>Test species / Duration</b>	rat / 90 days	rat / 90 days
<b>Study result</b>	NOAEL = 900 mg/kg bw/day LOAEL = 3600 mg/kg	NOEC = 1.28 mg/l
<b>Route of exposure</b>	Oral	Inhalation
<b>Target Organs</b>	None known.	

**(j) aspiration hazard;** Based on available data, the classification criteria are not met

**Symptoms / effects, both acute and delayed** May cause central nervous system depression: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

**Ecotoxicity effects** Do not empty into drains.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Ethyl acetate	Fathead minnow: LC50: 230 mg/l/ 96h Gold orfe: LC50: 270 mg/L/48h	EC50 = 717 mg/L/48h	EC50 = 3300 mg/L/48h	EC50 = 1180 mg/L 5 min EC50 = 1500 mg/L 15 min EC50 = 5870 mg/L 15 min EC50 = 7400 mg/L 2 h

### 12.2. Persistence and degradability

**Persistence** Readily biodegradable  
Persistence is unlikely, based on information available.

Component	Degradability
Ethyl acetate 141-78-6 (>95)	79 % (20 d) (OECD 301 D)

### 12.3. Bioaccumulative potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Ethyl acetate	0.6	30



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## 12.4. Mobility in soil

### Surface tension

The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air  
24 mN/m @ 20°C

## 12.5. Results of PBT and vPvB assessment

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

## 12.6. Other adverse effects

### Endocrine Disruptor Information Persistent Organic Pollutant Ozone Depletion Potential

This product does not contain any known or suspected endocrine disruptors  
This product does not contain any known or suspected substance  
This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

#### Waste from Residues / Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

#### Contaminated Packaging

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

#### European Waste Catalogue (EWC)

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

#### Other Information

Waste codes should be assigned by the user based on the application for which the product was used. Do not dispose of waste into sewer. Can be incinerated, when in compliance with local regulations.

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

#### 14.1. UN number

UN1173

#### 14.2. UN proper shipping name

ETHYL ACETATE

#### 14.3. Transport hazard class(es)

3

#### 14.4. Packing group

II

### ADR

#### 14.1. UN number

UN1173

#### 14.2. UN proper shipping name

ETHYL ACETATE

#### 14.3. Transport hazard class(es)

3

#### 14.4. Packing group

II

### IATA

#### 14.1. UN number

UN1173

#### 14.2. UN proper shipping name

ETHYL ACETATE

#### 14.3. Transport hazard class(es)

3

#### 14.4. Packing group

II

#### 14.5. Environmental hazards

No hazards identified

#### 14.6. Special precautions for user

No special precautions required

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**14.7. Transport in bulk according to** Not applicable, packaged goods  
**Annex II of MARPOL73/78 and the**  
**IBC Code**

## SECTION 15: REGULATORY INFORMATION

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

**International Inventories** X = listed.

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Ethyl acetate	205-500-4	-		X	X	-	X	X	X	X	X

### National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Ethyl acetate	WGK 1	

Component	France - INRS (Tables of occupational diseases)
Ethyl acetate	Tableaux des maladies professionnelles (TMP) - RG 84

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.

### 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has been conducted by the manufacturer/importer

## SECTION 16: OTHER INFORMATION

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

H225 - Highly flammable liquid and vapor  
H319 - Causes serious eye irritation  
H336 - May cause drowsiness or dizziness  
EUH066 - Repeated exposure may cause skin dryness or cracking

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**PNEC** - Predicted No Effect Concentration

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

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Dangerous Goods Code

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**OECD** - Organisation for Economic Co-operation and Development

**ATE** - Acute Toxicity Estimate

**BCF** - Bioconcentration factor

**VOC** - Volatile Organic Compounds

## Key literature references and sources for data

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

## Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.

Chemical incident response training.

## Prepared By

Health, Safety and Environmental Department

## Creation Date

13-Oct-2009

## Revision Date

22-Mar-2018

## Revision Summary

SDS authoring systems update, replaces ChemGes SDS No. 141-78-6/1.

## Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

## End of Safety Data Sheet