

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

#### 1.1. Product identifier

Product form	: Substance
Substance name	: Manganese Sulfate Monohydrate
EC-No.	: 232-089-9
CAS-No.	: 10034-96-5
Formula	: $MnSO_4 \cdot H_2O$

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

##### 1.2.1. Relevant identified uses

Use of the substance/mixture	: Laboratory Reagent Nutrient; Dietary Supplement; Treatment of potable water for radium removal
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##### 1.2.2. Uses advised against

No additional information available

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

##### Manufacturer

Jost Chemical Co.  
8150 Lackland Rd.  
63114 Saint Louis, Missouri  
T 314-428-4300 - F 314-428-4366  
[sds@jostchemical.com](mailto:sds@jostchemical.com) - [www.jostchemical.com](http://www.jostchemical.com)

##### Distributor

JOST CHEMICAL EUROPE SPRL  
rue du Bois Portal n° 30/1-3  
B - 5300 Andenne - BELGIQUE  
T +32 85-552655 - F +32 85-552654  
[info@jostchemical.com](mailto:info@jostchemical.com)

#### 1.4. Emergency telephone number

Emergency number	: For Hazardous Materials [or Dangerous Goods] Incident Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night United States and Canada: 1-800-424-9300 / +1 703-527-3887 Global: +1 703-741-5970
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### SECTION 2: Hazards identification

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

Classification according to Regulation (EC) No. 1272/2008 [CLP] Mixtures/Substances: SDS EU 2015: According to Regulation (EU) 2015/830 (REACH Annex II)

Specific target organ toxicity — Repeated exposure, Category 2 H373

Hazardous to the aquatic environment — Chronic Hazard, Category 2 H411

Full text of H statements : see section 16

#### Adverse physicochemical, human health and environmental effects

No additional information available

#### 2.2. Label elements

##### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS08

GHS09

Signal word (CLP)

: Warning

Hazard statements (CLP)

: H373 - May cause damage to organs through prolonged or repeated exposure (if inhaled, if swallowed).  
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP)

: P260 - Do not breathe dust.  
P314 - Get medical advice/attention if you feel unwell.

#### 2.3. Other hazards

Other hazards not contributing to the classification : None under normal conditions.

PBT: not yet assessed

vPvB: not yet assessed

### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Substance type : Mono-constituent

# Manganese Sulfate Monohydrate

## Safety Data Sheet

according to Regulation (EU) 2015/830

Name	Product identifier	%
Manganese Sulfate Monohydrate	(CAS-No.) 10034-96-5 (EC-No.) 232-089-9	100

Full text of H-statements: see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Get medical advice/attention if you feel unwell.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Rinse with water. Soap may be used. Take victim to a doctor if irritation persists. Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists. Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre ( <a href="http://www.big.be/antigif.htm">www.big.be/antigif.htm</a> ). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after inhalation	: AFTER INHALATION OF DUST: Coughing. ON HEATING: Metal fume fever.
Symptoms/effects after skin contact	: Slight irritation. Red skin.
Symptoms/effects after eye contact	: Redness of the eye tissue.
Symptoms/effects after ingestion	: AFTER INGESTION OF HIGH QUANTITIES: Irritation of the gastric/intestinal mucosa.
Chronic symptoms	: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Coughing. Respiratory difficulties. Impairment of the nervous system. Brain affection. Feeling of weakness. Loss of appetite. Behavioural disturbances. Slurred speech. Movement disturbances. Myasthenia. Tremor. Impaired concentration. Emotional instability.

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

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	: Adapt extinguishing media to the environment for surrounding fires. Water spray. Dry powder. Foam.
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### 5.2. Special hazards arising from the substance or mixture

Fire hazard	: DIRECT FIRE HAZARD: Non combustible.
Explosion hazard	: No data available on direct explosion hazard. No data available on indirect explosion hazard.
Hazardous decomposition products in case of fire	: On burning: release of toxic and corrosive gases/vapours (sulphur oxides) and formation of metallic fumes.

### 5.3. Advice for firefighters

Precautionary measures fire	: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	: Dilute toxic gases with water spray. Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting	: Heat/fire exposure: compressed air/oxygen apparatus. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6: Accidental release measures

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

#### 6.1.1. For non-emergency personnel

Protective equipment	: Gloves. Protective clothing. Dust cloud production: compressed air/oxygen apparatus.
Emergency procedures	: Ventilate spillage area. Mark the danger area. Prevent dust cloud formation. No naked flames. Wash contaminated clothes. Do not breathe dust/fume/gas/mist/vapours/spray.

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Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Avoid contact with skin and eyes.

### 6.2. Environmental precautions

Avoid release to the environment. Prevent soil and water pollution. Prevent spreading in sewers.

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

For containment : Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. Collect spillage.

Methods for cleaning up : Mechanically recover the product. Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. Take collected spill to manufacturer/competent authority. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Avoid raising dust. Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Do not breathe dust/fume/gas/mist/vapours/spray.

Hygiene measures : Observe very strict hygiene - avoid contact. Keep container tightly closed. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

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

Technical measures : Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems.

Storage conditions : Store in a well-ventilated place. Keep cool.

Incompatible materials : Strong oxidisers. Metals. Reactive metals (Al, K, Zn ...).

Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources.

Information on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents. water/moisture.

Storage area : Store in a dry area. Unauthorized persons are not admitted. Meet the legal requirements.

Special rules on packaging : SPECIAL REQUIREMENTS: closing. watertight. dry. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials : SUITABLE MATERIAL: cardboard. plastics. glass.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

DNEL : 0.2 mg/m<sup>3</sup> (Long-term - systemic effects, inhalation, workers)

PNEC : 0.0128 mg/l (aqua, freshwater)

### 8.2. Exposure controls

#### Appropriate engineering controls:

Ensure good ventilation of the work station.

#### Personal protective equipment:

Dust/aerosol mask with filter type P2. Gloves. In case of dust production: protective goggles. Safety glasses.

#### Materials for protective clothing:

GIVE GOOD RESISTANCE: butyl rubber. PVC

#### Hand protection:

Gloves

#### Eye protection:

Safety glasses. In case of dust production: protective goggles. Safety glasses

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according to Regulation (EU) 2015/830

### Skin and body protection:

Protective clothing

### Respiratory protection:

Dust production: dust mask with filter type P3

### Personal protective equipment symbol(s):



### Environmental exposure controls:

Avoid release to the environment.

## SECTION 9: Physical and chemical properties

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

Physical state	: Solid
Appearance	: Powder. Granular solid.
Molecular mass	: 169.01 g/mol
Colour	: Rose.
Odour	: Odourless.
Odour threshold	: No data available
pH	: 3.0 - 3.5 (5 %)
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 57 °C
Freezing point	: Not applicable
Boiling point	: Not applicable
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Decomposition temperature	: > 117 °C
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: Not applicable
Relative density	: 3
Density	: 2950 kg/m <sup>3</sup>
Solubility	: Soluble in water. Water: 100 g/100ml
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: Not applicable

### 9.2. Other information

VOC content	: 0 %
Other properties	: Hygroscopic. Acid reaction.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Hygroscopic.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

Oxidizing agent. Powdered metals.

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### 10.6. Hazardous decomposition products

Sulphur oxides. Metallic oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified (Based on available data, the classification criteria are not met)

Acute toxicity (dermal) : Not classified (Based on available data, the classification criteria are not met)

Acute toxicity (inhalation) : Not classified (Based on available data, the classification criteria are not met)

#### Manganese Sulfate Monohydrate (10034-96-5)

LD50 oral rat	2150 mg/kg (Published data)
LC50 inhalation rat (mg/l)	> 4.45 mg/l/4h

Causes serious eye damage. : Not classified (Based on available data, the classification criteria are not met)  
pH: 3.0 - 3.5 (5 %)

Serious eye damage/irritation : Not classified (Based on available data, the classification criteria are not met)  
pH: 3.0 - 3.5 (5 %)

Respiratory or skin sensitisation : Not classified (Lack of data)

Germ cell mutagenicity : Not classified (Lack of data)

Carcinogenicity : Not classified (Lack of data)

Reproductive toxicity : Not classified (Lack of data)

STOT-single exposure : Not classified (Lack of data)

STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure (if inhaled, if swallowed).

Aspiration hazard : Not classified (Lack of data)

Potential adverse human health effects and symptoms : Slightly harmful if swallowed. Slightly irritant to skin.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Dangerous for the environment. Toxic to aquatic life with long lasting effects. Toxic to aquatic life.

Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ecology - water : Toxic to crustacea. Harmful to fishes. Mild water pollutant (surface water). pH shift.

Dangerous for the environment : Not classified

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

#### Manganese Sulfate Monohydrate (10034-96-5)

LC50 fish 1	33.8 mg/l (96 h, Pimephales promelas, Anhydrous form)
EC50 Daphnia 1	8.28 mg/l (48 h, Daphnia magna, Anhydrous form)
ErC50 (algae)	61 mg/l (72 hr; Desmodesmus subspicatus) (OECD 201)
NOEC (chronic)	1 mg/l (Desmodesmus Subspicatus) (OECD 201)

### 12.2. Persistence and degradability

#### Manganese Sulfate Monohydrate (10034-96-5)

Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

#### Manganese Sulfate Monohydrate (10034-96-5)

PBT: not yet assessed
vPvB: not yet assessed

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### 12.6. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	: Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Remove to an authorized dump (Class I). Precipitate/make insoluble.
Additional information	: Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

## SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

### 14.1. UN number

UN-No. (ADR)	: 3077
UN-No. (IMDG)	: 3077
UN-No. (IATA)	: 3077
UN-No. (ADN)	: 3077
UN-No. (RID)	: 3077

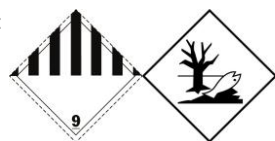
### 14.2. UN proper shipping name

Proper Shipping Name (ADR)	: Environmentally hazardous substance, solid, n.o.s.
Proper Shipping Name (IMDG)	: environmentally hazardous substance, solid, n.o.s.
Proper Shipping Name (IATA)	: Environmentally hazardous substance, solid, n.o.s.
Proper Shipping Name (ADN)	: Environmentally hazardous substance, solid, n.o.s.
Proper Shipping Name (RID)	: Environmentally hazardous substance, solid, n.o.s.
Transport document description (ADR)	: UN 3077 Environmentally hazardous substance, solid, n.o.s., 9, III, (-)
Transport document description (IMDG)	: UN 3077 environmentally hazardous substance, solid, n.o.s. (Manganese Sulfate Monohydrate), 9, III, MARINE POLLUTANT
Transport document description (IATA)	: UN 3077 Environmentally hazardous substance, solid, n.o.s. (Manganese Sulfate Monohydrate), 9, III
Transport document description (ADN)	: UN 3077 Environmentally hazardous substance, solid, n.o.s., 9, III
Transport document description (RID)	: UN 3077 Environmentally hazardous substance, solid, n.o.s., 9, III

### 14.3. Transport hazard class(es)

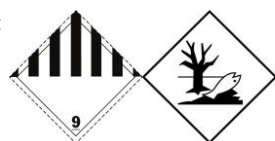
#### ADR

Transport hazard class(es) (ADR)	: 9
Danger labels (ADR)	: 9



#### IMDG

Transport hazard class(es) (IMDG)	: 9
Danger labels (IMDG)	: 9



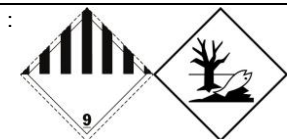
#### IATA

Transport hazard class(es) (IATA)	: 9
Hazard labels (IATA)	: 9

# Manganese Sulfate Monohydrate

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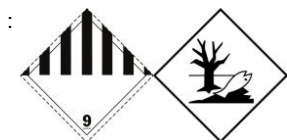
according to Regulation (EU) 2015/830



### ADN

Transport hazard class(es) (ADN) : 9

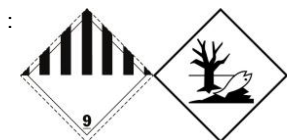
Danger labels (ADN) : 9



### RID

Transport hazard class(es) (RID) : 9

Danger labels (RID) : 9



### 14.4. Packing group

Packing group (ADR) : III

Packing group (IMDG) : III

Packing group (IATA) : III

Packing group (ADN) : III

Packing group (RID) : III

### 14.5. Environmental hazards

Dangerous for the environment : Yes

Marine pollutant : Yes

Other information : No supplementary information available

### 14.6. Special precautions for user

#### Overland transport

Transport regulations (ADR) : Subject

Classification code (ADR) : M7

Special provisions (ADR) : 274, 335, 601, 375

Limited quantities (ADR) : 5kg

Excepted quantities (ADR) : E1

Packing instructions (ADR) : P002, IBC08, LP02, R001

Special packing provisions (ADR) : PP12, B3

Mixed packing provisions (ADR) : MP10

Portable tank and bulk container instructions (ADR) : T1, BK1, BK2

Portable tank and bulk container special provisions (ADR) : TP33

Tank code (ADR) : SGAV, LGBV

Vehicle for tank carriage : AT

Transport category (ADR) : 3

Special provisions for carriage - Packages (ADR) : V13

Special provisions for carriage - Bulk (ADR) : VC1, VC2

Special provisions for carriage - Loading, unloading and handling (ADR) : CV13

Hazard identification number (Kemler No.) : 90

Orange plates : 

Tunnel restriction code (ADR) : -

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### Transport by sea

Transport regulations (IMDG)	: Subject
Special provisions (IMDG)	: 274, 335, 966, 967, 969
Limited quantities (IMDG)	: 5 kg
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: P002, LP02
Special packing provisions (IMDG)	: PP12
IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B3
Tank instructions (IMDG)	: T1, BK1, BK2, BK3
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-F
Stowage category (IMDG)	: A
Stowage and handling (IMDG)	: SW23

### Air transport

Transport regulations (IATA)	: Subject to the provisions
PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y956
PCA limited quantity max net quantity (IATA)	: 30kgG
PCA packing instructions (IATA)	: 956
PCA max net quantity (IATA)	: 400kg
CAO packing instructions (IATA)	: 956
CAO max net quantity (IATA)	: 400kg
Special provisions (IATA)	: A97, A158, A179, A197
ERG code (IATA)	: 9L

### Inland waterway transport

Transport regulations (ADN)	: Subject
Classification code (ADN)	: M7
Special provisions (ADN)	: 274, 335, 375, 601
Limited quantities (ADN)	: 5 kg
Excepted quantities (ADN)	: E1
Carriage permitted (ADN)	: T* B**
Equipment required (ADN)	: PP, A
Number of blue cones/lights (ADN)	: 0

### Rail transport

Transport regulations (RID)	: Subject
Classification code (RID)	: M7
Special provisions (RID)	: 274, 335, 375, 601
Limited quantities (RID)	: 5kg
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P002, IBC08, LP02, R001
Special packing provisions (RID)	: PP12, B3
Mixed packing provisions (RID)	: MP10
Portable tank and bulk container instructions (RID)	: T1, BK1, BK2
Portable tank and bulk container special provisions (RID)	: TP33
Tank codes for RID tanks (RID)	: SGAV, LGBV
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W13
Special provisions for carriage – Bulk (RID)	: VC1, VC2
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW31
Colis express (express parcels) (RID)	: CE11
Hazard identification number (RID)	: 90

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

Not applicable



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### SECTION 15: Regulatory information

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

##### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions

Manganese Sulfate Monohydrate is not on the REACH Candidate List

Manganese Sulfate Monohydrate is not on the REACH Annex XIV List

VOC content : 0 %

Directive 2012/18/EU (SEVESO III)

##### 15.1.2. National regulations

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

#### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

### SECTION 16: Other information

#### Indication of changes:

This sheet was updated (refer to the date at the top of this page).

#### Full text of H- and EUH-statements:

Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

SDS EU (REACH Annex II)

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*