SAFETY DATA SHEET
ACIDE MALIQUE

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product identifier

Product name: Acide Malique

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

Industry, wine and food

1.3. Details of the supplier of the safety data sheet

Company details: Institut Œnologique de Champagne
Z.I. de Mardeuil – Allée de Cumières – BP 25
51201 EPERNAY Cedex
FRANCE
Tel: + 33 (0) 3.26.51.96.00.
Fax: + 33 (0) 3.26.51.02.20.
fds@ioc.eu.com

1.4. Emergency telephone number

112

SECTION 2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Hazard classes and Hazard
statement Code(s)Serious eye damage/eye irritation Eye Irrit. 2
H319: Causes serious eye irritation.

Hazard Class and Category Code(s)
Eye Irrit. 2

2.2. Label elements

Pictograms:

WARNING

Hazard statement:
H319: Causes serious eye irritation.

Precautionary statements:
P264: Wash eyes thoroughly after handling.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P280: ear protective gloves/eye protection/face protection. (see MSDS).
P337+P313: If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Chemical formula: C4H6O5

Concentration range: >= 99,0 %

REACH registration number: 01-2119906954-31-0000

CAS number: 6915-15-7

EC number: 230-022-8

3.2. Mixtures

SECTION 4. FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation:
Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration.

Skin:
After contact with skin, wash immediately with plenty of soap and water. Consult a physician.

Eye:
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Call a physician immediately.

Ingestion:
Call a physician immediately. Clean mouth with water. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed
Irritating to eyes and skin.

4.3. Indication of any immediate medical attention and special treatment needed
None

SECTION 5. FIREFIGHTING MEASURES

5.1. Extinguishing media
Appropriate fire-fighting equipment: Foam, powder, water spray.

Inappropriate fire-fighting equipment : Do not use water jets as they can disperse and spread fire.

5.2. Special hazards arising from the substance or mixture
In combustion emits toxic fumes of carbon dioxide / carbon monoxide.

5.3. Advice for firefighters
In the event of fire, wear self-contained breathing apparatus.
Water mist may be used to cool closed containers.
Use personal protective equipment to protect skin/eyes.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Move any people not authorised to contain the emergency out of the area.
Avoid coming in contact with the substance or handling containers without adequate protection.
Use the personal protective equipment described in section 8.
Use a respirator in the event of emissions/spillage of large quantities.
Eliminate all sources of ignition.
Remove all incompatible materials as outlined in section 10.5 of SDS.
Avoid dust formation.

6.2. Environmental precautions
Contain the spillage as far as possible.
Prevent spilled materials getting into the drainage system, wells, surface water or groundwater.
In the case of leaks into a water course, drains, or if the product has contaminated the ground or vegetation, contact the local authorities..

6.3. Methods and material for containment and cleaning up
Do not use equipment that can generate sources of ignition when cleaning. Clean the spilled material mechanically and put it in an appropriate container for disposal in accordance with section 13. After collection, ventilate and clean the affected area with water before granting access. Do not flush the water used for cleaning into watercourses or down drains..

6.4. Reference to other sections
See Section 13 for disposal of the substance

SECTION 7. HANDLING AND STORAGE

7.1. Precautions for safe handling
Recommendations for safe use:
Provide sufficient air exchange and/or exhaust in work rooms.
Avoid contact with skin and eyes.
Avoid accumulation of electrostatic charges, to prevent risk of powders exploding.
Avoid formation of respirable particles.

Advice on general occupational hygiene:
Do no eat, drink or smoke when using this product.
Wash face and hands thoroughly after handling.
Take off contaminated clothing and wash before reuse.

7.2. Conditions for safe storage, including any incompatibilities
Eliminate all sources of combustion.
Keep container hermetically closed in a dry and well ventilated environment.
Avoid the formation of dust.
Keep away from incompatible materials (see point 10.5).
Keep away from food, feed and beverages.

7.3. Specific end use(s)

SECTION 8. EXPOSURE CONTROL / PERSONAL PROTECTION

8.1. Control parameters
Workers:

Short-term systemic effects:
Inhalation: DNEL: 8,8 mg/m3 Assessment factor 50
Dermal: DNEL: 40 mg/kg bw/day Assessment factor 50

Long-term systemic effects:
Inhalation: DNEL: 10,6 mg/m3 Assessment factor 50
Dermal: DNEL: 12 mg/kg bw/day Assessment factor 50

General population:

Short-term systemic effects:
Oral: DNEL 20 mg/kg bw/day Assessment factor 100
Inhalation: DNEL 2,2 mg/m3 Assessment factor 100
Dermal: DNEL 20 mg/kg bw/day Assessment factor 100

Long-term systemic effects:
Oral: DNEL 6 mg/kg bw/day Assessment factor 100
Inhalation: DNEL 2,6 mg/m3 Assessment factor 100
Dermal: DNEL 6 mg/kg bw/day Assessment factor 100
PREDICTED NO EFFECT CONCENTRATION(PNEC):

Environment:

Water:
PNEC water (freshwater): 0.1 mg/L Assessment factor 1000
PNEC water (marine water): 0.01 mg/L Assessment factor 10000
PNEC water (intermittent releases): 1 mg/L Assessment factor 100

Soil:
PNEC soil: 0.275 mg/kg soil dw

Sediment:
PNEC sediment (freshwater): 0.275 mg/kg sediment dw
PNEC sediment (marine water): 0.027 mg/kg sediment dw

STP:
PNEC STP: 3 mg/L Assessment factor 100

Occupational Exposure limit values:

National: Undetermined

8.2. Exposure controls
Appropriate engineering controls:
See annexe of this file.

Eye / face protection:
Goggles or protective visor.

Skin protection / of the Hand:
The material the gloves are made of must be impermeable and stable when in contact with the substance. No specific information available on the suitability of the material and thickness of the gloves. Consult the glove manufacturer for specific information on the suitability of the gloves. Replace the gloves in the case of internal contamination, when punctured, or if external contamination cannot be removed. The actual duration of protection depends on the conditions of use.

Skin protection / of the body:
Use suitable protective clothing for chemical substances.

Respiratory protection:
Mask with P3 dust filter if solid or type A filter for vapours and organic gases with a boiling point > 65°C if molten. (EN 149)

Environmental exposure controls:
See annexe of this file.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties
Apperance: Solid crystalline white powder

Odour: Characteristics

Odour threshold: No data available

pH: No data available

Melting / freezing point: 131 °C @ 1013 hPa

Initial boiling point and boiling range: Not determined

Flash point: Not determined

Evaporation rate: No data available

Flammability (solid, gas) +: Not flammable

Upper/lower flammability or explosive limits: 187.5 g/m3

Vapour pressure: 0.00039 Pa @ 25°C

Vapour density: No data available

Relative density: 1.615 @ 20°C

Solubility(ies): 647 g/l @ 20°C

Partition coefficient: n-octanol/water: -1.26 @ 25°C

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Viscosity : No data available

Explosive properties: No data available

Oxidising properties: No data available

9.2. Other information

Parameters: Test Results:

Sample Characterisation:
Particle Size Distribution of sample (µm): =< 70
Moisture content (%): 0.12

Dust Explosion risk:
Minimum Ignition Energy (MIE),(mJ):
Without inductance (Electrostatic)(<25 µH): > 1000
With inductance (Mechanical)(1mH): 80-100
Explosion severity (20 litre sphere):
Maximum explosion pressure Pmax (barg): 6.4 at 2375 g/m3
(dP/dt)max (bar/s): 256 at 2167 g/m3
Kst value (bar.m/s): 69
St class: 1
Ambient Temperature(°C): 20

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity
Stable under normal conditions.

10.2. Chemical stability
Stable under normal conditions

10.3. Possibility of hazardous reactions
None known in normal conditions.

10.4. Conditions to avoid
Avoid the build-up of electrostatic charges. Avoid exposure to heat sources. Avoid the formation of dust.

10.5. Incompatible materials
Oxidizing agents, alkalis, alkali metals, amines and carbonates.
Unsuitable container materials: iron, zinc, aluminium. Acqueous solutions of Malic Acid can release explosive hydrogen gas if in contact with these active metals.

10.6. Hazardous decomposition products
Unknown.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects
Not classified.

SECTION 12. ECOLOGICAL INFORMATION

12.1. Toxicity
Toxicity to aquatic environment:

Short-term toxicity to the aquatic environment:

Fish:
Method:
OECD Guideline 203 (Fish, Acute Toxicity Test
Danio rerio; freshwater; semi-static
Results:
LC50 (96 h): > 100 mg/L test mat. (nominal)
NOEC: 100 mg/L

Aquatic invertebrates:
Method:
OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Daphnia sp. freshwater; static.
Results:
LC50 (48h): 240 mg/L test mat. based on: mortality
EC50: 240 mg/L

Algae or other aquatic plants:
Method:
Read-across from supporting substance (structural analogue or surrogate)
OECD Guideline 201 (Alga, Growth Inhibition Test)
Pseudokirchnerella subcapitata (algae); freshwater; static.
Results:
EC50 (72 h): > 100 mg/L test mat. (nominal) based on: biomass
EC50 (72 h): > 100 mg/L test mat. (nominal) based on: growth rate
NOEC (72 h): 100 mg/L test mat. (nominal) based on: biomass
NOEC (72 h): 100 mg/L test mat. (nominal) based on: growth rate

Value used for CSA: EC10/LC10 or NOEC: 100 mg/L

Aquatic microorganisms:
Method:
Read-across from supporting substance (structural analogue or surrogate)
OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
activated sludge of a predominantly domestic sewage; freshwater; static
Results:
EC50 (3 h): > 300 mg/L test mat. (nominal) based on: respiration rate
Long-term toxicity to aquatic environmental: not available
Toxicity to the Terrestrial environment: not available

12.2. Persistence and degradability
Abiotic degradation: not available

Biotic degradation:

Aquatic environment:
Method:
OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
Test type: ready biodegradability, activated sludge (adaptation not specified)
Results:
readily biodegradable
% Degradation of test substance:
73% after 14 d (O2 consumption) (BOD)
99% after 14 d (TOC removal) (TOC)
100% after 14 d (Test mat. analysis) (HPLC)

Value used for CSA: Readily biodegradable

12.3. Bioaccumulative potential
Bioaccumulation:
Log Pow: 1,26

Aquatic environment:
Method:
Weight of evidence. ECHA Guidance on information requirements and chemical safety assessment - Chapter R.06: QSARs and grouping of chemicals - May 2008
Results:
BCF: 1 L/kg (whole body w.w.)
Value used for CSA: BCF: 1 L/kg ww (L/kg ww or dimensionless)
Terrestrial environment: Data not available

Conclusions: These data indicate that the substance is not bioaccumulative (B).

12.4. Mobility in soil
Adsorption/desorption:
In accordance with REACH Regulation 1907/2006, Annex VIII - 9.3.1 Column 2, screening tests for adsorption/desorption do not need to be conducted as the substance has a low potential for adsorption based on a log Kow of - 1.26

Volatilisation:
Method:
Others: Weight of evidence
Results:
Henry's Law constant: 0.000000086 Pa m3/mol at 25 °C

Distribution among environmental compartments:
Method:
Weight of evidence. Calculation programme: EPI Suite (v.4.10).
Calculation according to Mackay, Level III
Media: air - biota - sediment(s) - soil - water;
Results:
Percent distribution in media:
Air (%): 0,0001
Water (%): 26,4
Soil (%): 73,6
Sediment (%): 0,0344

12.5. Results of PBT and vPvB assessment
Based on available information, the substance is not PBT vPvB.

12.6. Other adverse effects
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Recycle if possible, or send to an authorized incinerator. Follow the instructions in sections 6 and 7 when handling waste spillages, taking the steps indicated in the same sections. We recommend recycling containers instead of disposal. Observe the local and national legislation

in force.

SECTION 14. TRANSPORT INFORMATION

14.1. UN number
Not regulated.

14.2. UN proper shipping name
Not regulated

14.3. Transport hazard class(es)
Not regulated

14.4. Packing group
Not regulated

14.5. Environmental hazards
Not regulated

14.6. Special precautions for user
Not regulated

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

SECTION 15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
European Regulation 1907/2006/EC (Reach);
European Regulation 1272/2008/EC (CLP);
European Regulation 453/2010/EU;
DIRECTIVE 24/1998/EC;
DIRECTIVE 37/2004/EC;
DIRECTIVE 92/1999/EC;
DIRECTIVE 18/2012/EU;

15.2. Chemical safety assessment
No.

SECTION 16. OTHER INFORMATION

Complete review of compliance with Regulation (EU) No 453/2010 of 20 May 2010