Safety data sheet
according to regulation (EG) Nr. 1907/2006

Product name	Acetic anhydride		EUGB/EN
MSDS number	80005	**Revision Date**	Jul.23.2009***
Revision Number	4***.01***	**Issuing date**	Jul.23.2009***

1. Identification of the substance/preparation and the company/undertaking

Product name
Acetic anhydride

Manufacturer, importer, supplier
Celanese Chemicals Europe GmbH
Frankfurter Straße 111
D-61476 Kronberg/Ts.

Product Information
PS.Chemicals.EU@celanese.com

Emergency telephone number
+49 (0)69-305 6418

End use:
Chemical intermediate (including monomers)

2. Hazards identification

Indication of danger Corrosive

R-phrase(s)

R10 - Flammable.
R34 - Causes burns.
R20/22 - Harmful by inhalation and if swallowed.

3. Composition/information on ingredients

Components	CAS-No	EC-No.	Classification	Percent %
Acetic anhydride	108-24-7	203-564-8	C;R34 R10 Xn;R20/22	99.5

4. First aid measures

General Information Remove contaminated, soaked clothing immediately and dispose of safely. Pay attention to own protection. In any case show the physician the Safety Data Sheet.

Inhalation Keep at rest. Move to fresh air. Call a physician immediately.

Skin Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Eyes	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.
Ingestion	Rinse with plenty of water. If conscious, drink plenty of water. If swallowed, do not induce vomiting - seek medical advice.

Notes to physician

Main symptoms	Vapours may cause irritation to the eyes, respiratory system and the skin.
Special hazard	respiratory disorder.
Treatment	Treat symptomatically. In case of lung irritation first treatment with dexametason aerosol (spray). In case of choking: gastroscopy inclusive of aspiration and acidosis compensation..

5. Fire-fighting measures

Suitable extinguishing media
foam. dry powder. carbon dioxide (CO2).

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases
Under conditions giving incomplete combustion, hazardous gases produced may consist of
carbon monoxide
carbon dioxide (CO2)
Combustion gases of organic materials must in principle be graded as inhalation poisons

Special protective equipment for fire-fighters
self-contained breathing apparatus (EN 133).

Environmental precautions
Water run-off and vapor cloud may be corrosive. Dike and collect water used to fight fire.

Other Information
In the event of fire, cool tanks with water spray. Reacts violently with water.

6. Accidental release measures

Personal precautions
Avoid contact with the skin and the eyes. Keep away from heat and sources of ignition. Provide adequate ventilation.

Environmental precautions
Prevent further leakage or spillage. Do not discharge into the drains/surface waters/groundwater.

Methods for cleaning Up
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Dispose of in accordance with local regulations.

7. Handling and storage

Handling

Advice on safe handling
Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Store in a place accessible by authorized persons only.

Protection - fire and explosion:
Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge. In case of fire, emergency cooling with water spray should be available.

Temperature class
T2

Storage

Technical measures/Storage conditions
Keep container tightly closed in a dry and well-ventilated place.

Incompatible products
Keep away from:, bases, amines, water

German storage class
3A: Flammable liquids.

8. Exposure controls / personal protection

National occupational exposure limits

Components	TWA	
Acetic anhydride	2.5 mg/m^3	0.5 PPM

Components	STEL	
Acetic anhydride	10 mg/m^3	2 PPM

Exposure controls

Engineering measures General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred.

Personal protective equipment

General advice Use only in an area equipped with a safety shower. Avoid contact with skin and eyes. Do not breathe vapors or spray mist.

Hygiene measures When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Respiratory protection	In appearance of aerosol or vapor protection required (gas filter A) .
Eye protection	Tightly fitting safety goggles.
skin protection	impervious clothing
Hand protection	Chemicals resistant gloves
Suitable material	butyl-rubber
Type	Butoject (Company KCL) or comparable article; or refer to glove manufacturer's recommendation
Evaluation	according to EN 374: level 6
Material thickness	approx 0.3 mm
Break through time	approx 480 min
Suitable material	butyl-rubber
Type	Butoject (Company KCL) or comparable article; or refer to glove manufacturer's recommendation
Evaluation	according to EN 374: level 6
Material thickness	approx 0.7 mm
Break through time	approx 480 min

9. Physical and chemical properties

Appearance	
Form	liquid
Colour	colourless
Odor	pungent, of vinegar
Flash point	49°C***
Method	closed cup
Ignition temperature	330°C***
Method	DIN 51794
Lower explosion limit	~2.0 Vol. %
Upper explosion limit	~10.2 Vol. %
Melting point/range	-73°C***
Boiling point/range	140°C*** @ 1013 hPa***
Density	1.08 g/ml @ 20°C***
Viscosity	0.843 mPa*s @ 25°C***
vapor pressure	5 hPa @ 20°C***
	29 hPa @ 50°C***
vapor density	3.5 (Air=1)***
Evaporation Rate	0.46 (n-Butyl acetate = 1)
Water solubility	hydrolyses
Partition coefficient (n-octanol/water)	-0.58 (calculated)***

10. Stability and reactivity

Stability	May react with evolution of heat and/or toxic gases on contact with water.***
Conditions to avoid	Keep away from heat,sparks and flame.. Avoid any source of ignition..
Materials to avoid	Keep away from:, water, steam, alcohols, Aqueous solution of alkali salts, acids, peroxides, amines, strong oxidizing agents
Hazardous reactions	Reacts violently with water. alkalies. alcohols.

11. Toxicological information

Acetic anhydride

Oral	LD50: 1780 mg/kg, rat
Dermal	LD50: 4000 mg/kg, rabbit
Inhalation	LC50: 1680 mg/m³, rat, 6h
Skin irritation	corrosive
Species	Human
Eye Irritation	corrosive
Species	Human
in vitro Mutagenicity	Ames test - negative with and without activation Mouse lymphoma cell gene-mutation - negative with activation Mouse lymphoma cell gene-mutation equivocal without activation
in vivo Mutagenicity	Mutagenicity (micronucleus test) rat Inhalation - negative

12. Ecological information

Acetic anhydride

Toxicity to fish	LC50: 265 mg/l (48h)
Species	Leuciscus idus (Golden orfe)
Method	static conditions
Toxicity to daphnia	EC50: 55 mg/l (24h)
Species	Daphnia magna
Method	static conditions
Toxicity to algae	EC0: 18 mg/l (8d)
Species	Microcystis aeruginosa
Method	static conditions
	EC0: 3400 mg/l (8d)
Species	Scenedesmus quadricauda
Method	static conditions
Toxicity to bacteria	EC0: 1150 mg/l (16h)
Species	Pseudomonas putida
Biodegradation	99 % (22-24 d)

Acetic anhydride

Method	84/449/EEC, C.7
Bioconcentration factor (BCF)	3.2

13. Disposal considerations

Product information
Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal..

Uncleaned empty packaging
Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse..

14. Transport information

ADR/RID

UN/ID No.	UN 1715
Proper Shipping Name	Acetic anhydride ***
Hazard Class	8
Subsidiary Risk	3
Packing group	II
Tunnel Restriction Code	(D/E)
Hazard Number	83

ADNR ADNR: Container and Tanker***

UN/ID No.	UN 1715
Proper Shipping Name	Acetic anhydride ***
Hazard Class	8
Subsidiary Risk	3
Packing group	II

ICAO/IATA

UN-No.	UN 1715
Proper Shipping Name	Acetic anhydride ***
Hazard Class	8
Subsidiary Risk	3
Packing group	II

IMDG

UN/ID No.	UN 1715
Proper Shipping Name	Acetic anhydride ***
Hazard Class	8
Subsidiary Risk	3
Packing group	II
EmS Code	F-E, S-C

15. Regulatory information

Labelling in accordance with EC directives

EC label

Symbol(s) C - Corrosive.

R-phrase(s)

R10 - Flammable.
R34 - Causes burns.
R20/22 - Harmful by inhalation and if swallowed.

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

Water Hazard Class (WGK):
WGK Class 1
WGK Reg-Nr. 3
WGK Source Classification according to VwVwS, Annex 1 or 2

Acetic anhydride 108-24-7
Annex to Regulation 3677/90 2915 24 00 Listed.
Directive 98/24/EC Listed.

16. Other information

R-phrase(s)

R10 - Flammable.
R34 - Causes burns.
R20/22 - Harmful by inhalation and if swallowed.

For further information, see:
For more information, other material safety data sheets or technical data sheets please consult the Celanese homepage (www.celanese.com).

Other Information:
- Observe national and local legal requirements

Changes against the previous version are marked by ***

Product name	Acetic anhydride		EUGB/EN
MSDS number	80005	**Revision Date**	Jul.23.2009***
Revision Number	4***.01***	**Issuing date**	Jul.23.2009***

Sources of key data used to compile the datasheet
Information contained in this safety data sheet is based on Celanese owned data and public sources deemed valid or acceptable. The absence of data elements required by ANSI or 1907/2006 indicates, that no data meeting these requirements is available.

Further information
This information is based on our present state of knowledge. It shall describe our products regarding safety requirements and shall not be construed as a guarantee or statement of condition and/or quality.