

**Safety data sheet
according to 1907/2006/EC, Article 31**

revised on: 27.02.2024

Version number 8 (replaces version 7)

Creation Date: 01.02.2016

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

- **1.1 Product identifier**
- **Trade name: Acetic anhydride**
- **Article number:** 2210, 2250
- **CAS Number:**
108-24-7
- **EC number:**
203-564-8
- **Index number:**
607-008-00-9
- **Registration number** 01-2119486470-36-XXXX
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
The product is not intended for use by consumers
For professional users only
- **Life cycle stages**
F Formulation or re-packing
IS Use at industrial Sites
- **Sector of Use**
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU9 Manufacture of fine chemicals
SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU24 Scientific research and development
- **Product category**
PC19 Intermediate
PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents
PC21 Laboratory chemicals
PC29 Pharmaceuticals
PC39 Cosmetics, personal care products
PC40 Extraction agents
- **Process category**
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC5 Mixing or blending in batch processes
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC15 Use as laboratory reagent
- **Environmental release category**
ERC1 Manufacture of the substance
ERC2 Formulation into mixture
ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC6a Use of intermediate
- **Application of the substance / the mixture**
Industrial use
Laboratory chemical
Chemical analytics

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

- **Manufacturer/Supplier:**

Th. Geyer GmbH & Co. KG
Dornierstr. 4 – 6
D-71272 Renningen

Tel.: +49(0)7159-1637-0, Fax:+49 (0)7159/18417
www.thgeyer.de
sicherheitsdatenblaetter@thgeyer.de

- **Further information obtainable from:** Product management department

- **1.4 Emergency telephone number:**

National Poisons Information Service

City Hospital

Dudley Road

Birmingham B18 7QH

Tel.:Emergency: (00 44) 87 06 00 62 66

Members of the public seeking specific information on poisons should contact:

In England and Wales: NHS 111 - dial 111

In Scotland: NHS 24 - dial 111

SECTION 2: Hazards identification

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

- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 3 H226 Flammable liquid and vapour.



GHS05 corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

- **2.2 Label elements**

- **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the GB CLP regulation.

- **Hazard pictograms**



GHS02



GHS05



GHS07

- **Signal word** Danger

- **Hazard statements**

H226 Flammable liquid and vapour.

H302+H332 Harmful if swallowed or if inhaled.

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H314 Causes severe skin burns and eye damage.

Precautionary statements

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P260 Do not breathe mist/vapours/spray.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a POISON CENTER/doctor.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards
Results of PBT and vPvB assessment

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

3.1 Substances
CAS No. Description

CAS: 108-24-7 Acetic anhydride

Identification number(s)

• **EC number:** 203-564-8

• **Index number:** 607-008-00-9

Specific concentration limits

Skin Corr. 1B; H314: $C \geq 25 \%$

Skin Irrit. 2; H315: $5 \% \leq C < 25 \%$

Eye Dam. 1; H318: $C \geq 5 \%$

Eye Irrit. 2; H319: $1 \% \leq C < 5 \%$

STOT SE 3; H335: $C \geq 5 \%$

SECTION 4: First aid measures

4.1 Description of first aid measures
General information:

First aider needs to protect himself.

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

After inhalation:

Remove person from danger zone.

Supply fresh air.

Seek immediate medical advice.

In case of breathing difficulties or respiratory arrest, initiate artificial respiration.

After skin contact:

Remove all contaminated clothing immediately.

Wash/shower skin with water.

Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

After eye contact:

Keep eyelids open and rinse copiously with clean running water for at least 10 minutes.

Consult an ophthalmologist immediately.

Remove any contact lenses if possible.

Continue rinsing.

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- **After swallowing:**

Rinse out mouth and then drink plenty of water.

If swallowed, there is a risk of perforation of the oesophagus and stomach (strong caustic effect).

No neutralisation attempts.

Do not induce vomiting.

Call a doctor immediately.

- **Information for doctor:** Please observe safety data sheet/label.

- **4.2 Most important symptoms and effects, both acute and delayed**

Coughing

Nausea

Unconsciousness

Aspiration hazard

Cramp

Gastric or intestinal disorders

Breathing difficulty

- **Hazards**

Danger of gastric perforation.

Danger of impaired breathing.

Danger of pneumonia.

Danger of convulsion.

Danger of organ damage (liver, kidney)

- **4.3 Indication of any immediate medical attention and special treatment needed**

In case of lung irritation, administer glucocorticoid dose aerosol.

If necessary oxygen respiration treatment.

Monitor circulation.

Later observation for pneumonia and pulmonary oedema.

Symptomatic treatment.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**

- **Suitable extinguishing agents:**

Water spray, powder, carbon dioxide or foam. Fight larger fires with water spray or alcohol resistant foam.

- **For safety reasons unsuitable extinguishing agents:** Water with full jet.

- **5.2 Special hazards arising from the substance or mixture**

Combustible.

In case of fire, the following can be released:

Carbon oxides (CO, CO₂)

Vapours are heavier than air, spread on the ground and form an explosive mixture with air.

Formation of explosive/highly flammable vapour/air mixtures possible with insufficient ventilation and/or during use.

Formation of toxic gases is possible during heating or in case of fire.

- **5.3 Advice for firefighters**

- **Protective equipment:**

Wear fully protective suit.

Mouth respiratory protective device.

Wear self-contained respiratory protective device.

Do not inhale explosion gases or combustion gases.

- **Additional information**

Cool endangered receptacles with water spray.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Safely prevent extinguishing water from entering groundwater or surface water.

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SECTION 6: Accidental release measures

· 6.1 Personal precautions, protective equipment and emergency procedures

- Ensure adequate ventilation.
- Particular danger of slipping on leaked/spilled product.
- Keep away from ignition sources.
- Use respiratory protective device against the effects of fumes/dust/aerosol.
- Avoid contact with eyes and skin.
- Wear protective equipment. Keep unprotected persons away.
- Involve experts.

· 6.2 Environmental precautions:

- Explosion hazard.
- Do not allow to enter sewers/surface or ground water.

· 6.3 Methods and material for containment and cleaning up:

- Cover the sewerage system.
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- Dispose contaminated material as waste according to section 13.
- Ensure adequate ventilation.
- Dispose of the material collected according to regulations.

· 6.4 Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

SECTION 7: Handling and storage

· 7.1 Precautions for safe handling

- Store in cool, dry place in tightly closed receptacles.
- Keep away from heat and direct sunlight.
- Ensure that suitable extractors are available on processing machines
- Use only in well ventilated areas.
- Apply the general protective and hygienic measures when handling chemicals.
- Ensure good ventilation/exhaustion at the workplace.

· Information about fire - and explosion protection:

- Keep ignition sources away - Do not smoke.
- Protect against electrostatic charges.

· 7.2 Conditions for safe storage, including any incompatibilities

· Storage:

· Requirements to be met by storerooms and receptacles:

- Provide acid-resistant floor.
- Prevent any seepage into the ground.
- Store only in the original receptacle.

· Information about storage in one common storage facility:

- Store away from oxidising agents.
- Store away from water.

· Further information about storage conditions: Keep container tightly sealed.

· Storage class: 3

· 7.3 Specific end use(s) No further relevant information available.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

CAS: 108-24-7 Acetic anhydride

WEL	Short-term value: 10 mg/m ³ , 2 ppm
	Long-term value: 2.5 mg/m ³ , 0.5 ppm

Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls

Appropriate engineering controls No further data; see section 7.

Individual protection measures, such as personal protective equipment

General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Respiratory protection:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device. If air-purifying respiratory protection is required according to the risk assessment, wear a respirator with full-face mask with combination filter (US) or with filter type ABEK (EN 14387) filter cartridge. If the respirator is the only protective measure, an ambient air self-contained breathing apparatus with a full face mask must be worn. Respirators and components must be approved to appropriate government standards (for example, NIOSH (US) or CEN (EU)). Translated with www.DeepL.com/Translator (free version)

Hand protection



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Butyl rubber, BR

Material thickness > 0.7 mm

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Level 6 for applications > 480 min

Eye/face protection



Tightly sealed goggles

Body protection:



Protective work clothing (e. g. safety shoes EN ISO 20345, long-sleeved protective working garments).

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

· Physical state	Fluid
· Colour:	Colourless
· Odour:	Pungent
· Melting point/freezing point:	-73.1 °C
· Boiling point or initial boiling point and boiling range	139.55 °C
· Flammability	Flammable.
· Lower and upper explosion limit	
· Lower:	2 Vol %
· Upper:	10.2 Vol %
· Flash point:	49 °C
· Auto-ignition temperature:	330 °C
· Decomposition temperature:	Not determined.
· pH	~3
· Viscosity:	
· Kinematic viscosity	Not determined.
· Dynamic:	Not determined.
· Solubility	
· water at 20 °C:	136 g/l
· Partition coefficient n-octanol/water (log value)	Not determined.
· Vapour pressure at 20 °C:	4.9 hPa
· Density and/or relative density	
· Density at 20 °C:	1.08 g/cm ³
	Not determined.
· Relative density	Not determined.
· Vapour density	Not determined.

9.2 Other information

· Appearance:	
· Form:	Fluid
· Important information on protection of health and environment, and on safety.	
· Ignition temperature:	Not determined.
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Molecular weight	102.09 g/mol
· Change in condition	
· Evaporation rate	Not determined.

Information with regard to physical hazard classes

· Explosives	Void
· Flammable gases	Void
· Aerosols	Void
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	Flammable liquid and vapour.
· Flammable solids	Void
· Self-reactive substances and mixtures	Void
· Pyrophoric liquids	Void
· Pyrophoric solids	Void
· Self-heating substances and mixtures	Void

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- | | |
|--|------|
| · Substances and mixtures, which emit flammable gases in contact with water | Void |
| · Oxidising liquids | Void |
| · Oxidising solids | Void |
| · Organic peroxides | Void |
| · Corrosive to metals | Void |
| · Desensitised explosives | Void |

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability** Stable when stored and handled properly.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions**
 - Reacts with water.
 - Reacts with humid air.
 - Forms explosive gas mixture with air.
 - Reacts with alkali (lyes).
 - Reacts with certain metals.
 - Reacts with organic substances.
 - Reacts with oxidising agents.
- **10.4 Conditions to avoid**
 - Protect from moisture.
 - Heat, flames and sparks.
- **10.5 Incompatible materials:** Avoid contact with other chemicals.
- **10.6 Hazardous decomposition products:** In case of fire: see section 5.

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Harmful if swallowed or if inhaled.

· LD/LC50 values relevant for classification:

Oral	LD50	1,780 mg/kg (rat)
Dermal	LD50	4,000 mg/kg (rabbit)
Inhalative	LC50	1,000 mg/l (rat)

- **Skin corrosion/irritation** Causes severe skin burns and eye damage.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **Subacute to chronic toxicity:** -
- **11.2 Information on other hazards**
- **Endocrine disrupting properties** Substance is not listed.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.

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- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
- **12.7 Other adverse effects**
- **Additional ecological information:**
- **General notes:**
Must not reach sewage water or drainage ditch undiluted or unneutralised.
Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
Observe local (country-specific) regulations and laws.
This product and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Chemicals must be disposed of in accordance with the respective national regulations.

- **European waste catalogue**

07 00 00	WASTES FROM ORGANIC CHEMICAL PROCESSES
07 07 00	wastes from the MFSU of fine chemicals and chemical products not otherwise specified
07 07 99	wastes not otherwise specified
HP3	Flammable
HP5	Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
HP6	Acute Toxicity
HP8	Corrosive

- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

- **14.1 UN number or ID number**
- **ADR, IMDG, IATA** UN1715
- **14.2 UN proper shipping name**
- **ADR** 1715 ACETIC ANHYDRIDE
- **IMDG, IATA** ACETIC ANHYDRIDE

- **14.3 Transport hazard class(es)**

- **ADR**



- **Class** 8 (CF1) Corrosive substances.

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· Label	8+3
· IMDG	
 	
· Class	8 Corrosive substances.
· Label	8/3
· IATA	
 	
· Class	8 Corrosive substances.
· Label	8 (3)
· 14.4 Packing group	
· ADR, IMDG, IATA	II
· 14.5 Environmental hazards:	Not applicable.
· 14.6 Special precautions for user	Warning: Corrosive substances.
· Hazard identification number (Kemler code):	83
· EMS Number:	F-E,S-C
· Segregation groups	(SGG1) Acids
· Stowage Category	A
· Stowage Code	SW2 Clear of living quarters.
· Segregation Code	SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· 14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· Transport category	2
· Tunnel restriction code	D/E
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1715 ACETIC ANHYDRIDE, 8 (3), II

SECTION 15: Regulatory information

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

· Inventory of Hazardous Chemicals

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- **Poisons Act**
- **Regulated explosives precursors** Substance is not listed.
- **Regulated poisons** Substance is not listed.
- **Reportable explosives precursors** Substance is not listed.
- **Reportable poisons** Substance is not listed.
- **Labelling according to Regulation (EC) No 1272/2008**
The substance is classified and labelled according to the GB CLP regulation.
- **Hazard pictograms**



GHS02 GHS05 GHS07

- **Signal word** Danger
- **Hazard statements**
 - H226 Flammable liquid and vapour.
 - H302+H332 Harmful if swallowed or if inhaled.
 - H314 Causes severe skin burns and eye damage.
- **Precautionary statements**
 - P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 - P260 Do not breathe mist/vapours/spray.
 - P280 Wear protective gloves/protective clothing/eye protection/face protection.
 - P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
 - P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - P310 Immediately call a POISON CENTER/doctor.
 - P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **Seveso category** P5c FLAMMABLE LIQUIDS
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 40, 75
- **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**
Substance is not listed.
- **REGULATION (EU) 2019/1148**
- **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**
Substance is not listed.
- **Annex II - REPORTABLE EXPLOSIVES PRECURSORS** Substance is not listed.
- **Regulation (EC) No 273/2004 on drug precursors** 2A
- **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**
2
- **National regulations:**
- **Information about limitation of use:**
Employment restrictions concerning juveniles must be observed.
Employment restrictions concerning pregnant and lactating women must be observed.

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- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. The application, use and processing of our products are beyond our control and are therefore exclusively your responsibility.

- **Department issuing SDS:** Product management

- **Contact:** Product management

- **Version number of previous version:** 7

- **Abbreviations and acronyms:**

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

- *** Data compared to the previous version altered.**