

SAFETY DATA SHEET

According to 1907/2006/EC, article 31 (REACH)and
Regulation (EU) No. 2020/878
Revision date:20240101
Version: 1.0

ACMO

Section 1 Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	4-(1-oxo-2-propenyl)-morpholine
Synonyms, trade names	1-(morpholin-4-yl)prop-2-en-1-one;ACRYLOYL MORPHOLINE;ACMO

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

Recommended use	Used as polymeric monomer and reactive diluent. When used as a reactive diluent in light curing or radiation curing, it can significantly reduce the viscosity of the resin system.
Restrictions on use	No information available

1.3 Details of the Supplier

Name	Anstar Ltd.
Address	Airedale House, 423 Kirkstall Road, Leeds, UK
Postal code	LS4 2EW
Telephone	+44 (0)1133 572117
E-mail	support@anstar-ltd.com

1.4 Emergency telephone

Emergency telephone	+44 (0)7309857567
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Section 2 Hazards Identification

2.1 Classification of the substance or mixture:

2.1.1 Classification:

The substance is classified as following according to REGULATION (EC) No 1272/2008:

REGULATION (EC) No 1272/2008	
Hazard classes/Hazard categories	Hazard statement
Acute Tox. 4	H302
Skin Sens. 1	H317
Eye Dam. 1	H318
STOT RE 2	H373

For full text of H- phrases: see section 2.2.

2.2 label elements:

Hazard Pictograms:



Signal Word(S):	Danger
Hazard Statement:	H302: Harmful if swallowed. H317: May cause an allergic skin reaction. H318: Causes serious eye damage. H373: May cause damage to organs (state all organs affected, if known) through prolonged or repeated exposure (Route of exposure: Oral).
Precautionary statement:	P260: Do not breathe dust/fume/ gas/mist/vapours/spray. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P272: Contaminated work clothing should not be allowed out of the workplace. P280: Wear protective gloves/ protective clothing/eye protection/face protection. P301+P312: IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell. P302+P352: IF ON SKIN: Wash with plenty of water. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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 P311: Call a POISON CENTER/ doctor P314: Get medical advice/ attention if you feel unwell. P330: Rinse mouth. P333+P313: If skin irritation or rash occurs: Get medical advice/attention. P362+P364: Take off contaminated clothing and wash it before reuse. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P501: Dispose of contents/container in accordance with local/regional/national /international regulations.

2.3 Other hazards:

The substance is not considered a PBT/VPvB.

Section 3 Composition/information on ingredients

Substance/Mixture: Substance

Ingredient(s):

Chemical Name	CAS No.	EC No.	Concentration
4-(1-oxo-2-propenyl)-morpholine	5117-12-4	418-140-1	≥99 %

Section 4 First aid measures

4.1 Description of first aid measures:

In all cases of doubt, or when symptoms persist, seek medical attention.

4.1.1 In case of inhalation:

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

4.1.2 In case of skin contact:

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

4.1.3 In case of eyes contact:

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

4.1.4 In case of ingestion:

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed:

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Further symptoms are possible.

4.3 Indication of any immediate medical attention and special treatment needed:

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

Section 5 Firefighting measures

5.1 Extinguishing media:

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media: Not available.

5.2 Special hazards arising from the substance or mixture

In case of fire, the following can be released: Carbon dioxide (CO₂). Carbon monoxide (CO). Nitrous gases (NO_x).

5.3 Advice for firefighters:

Self-contained breathing apparatus with full-face mask and full protective clothing (standard wear).

Section 6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

6.1.1 For non-emergency personnel: Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

6.1.2 For emergency responders: Wear an appropriate NIOSH/MSHA approved respirator if mist, vapor or dust is generated.

6.2 Environmental Precautions:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and material for Containment and Cleaning up:

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

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 information on disposal.

Section 7 Handling and storage

7.1 Precautions for safe handling:

7.1.1 Protective measures: Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Normal measures for preventive fire protection.

7.1.2 Advice on general occupational hygiene: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Keep working clothes separately. Do not drink, eat or smoke while handling. Wash hands before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities:

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature: Room temperature.

Light sensitive.

Not applicable.

7.3 Specific end use(s):

Section 8 Exposure Controls/Personal Protection

8.1 Control parameters:

8.1.1 Occupational exposure limits: Not available.

8.1.2 Additional exposure limits under the conditions of use: Not available.

8.1.3 DNEL/DMEL and PNEC-Values:

Workers - Hazard via inhalation route	Systemic effects-Long term exposure	DNEL=0.59 mg/m ³
Workers - Hazard via dermal route	Systemic effects-Long term exposure	DNEL=0.17 mg/kg bw/day
General Population - Hazard via inhalation route	Systemic effects-Long term exposure	DNEL=0.145 mg/m ³
General Population - Hazard via dermal route	Systemic effects-Long term exposure	DNEL=0.083 mg/kg bw/day
General Population - Hazard via oral route	Systemic effects-Long term exposure	DNEL=0.083 mg/kg bw/day
Hazard for aquatic organisms	Freshwater	PNEC=0.12 mg/L
Hazard for aquatic organisms	Marine water	PNEC=0.012 mg/L
Hazard for aquatic organisms	STP	PNEC=1 mg/L
Hazard for aquatic organisms	Sediment (freshwater)	PNEC=0.103 mg/kg sediment dw
Hazard for aquatic organisms	Sediment (marine water)	PNEC=0.01 mg/kg sediment dw
Hazard for terrestrial organisms	Soil	PNEC=0.021 mg/kg soil dw
Hazard for predators	Secondary poisoning	Not available

8.2 Exposure controls:

8.2.1 Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Use explosion-proof general and local exhaust ventilation. Wash hands during breaks and at the end of the work.

8.2.2 Individual protection measures, such as personal protective equipment:

Eye/face protection: Tightly fitting safety goggles. Face shield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Hand protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body protection: Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Thermal hazards: Wear suitable protective clothing to prevent heat.

8.2.3 Environmental exposure controls: Avoid discharge into the environment.
According to local regulations, Federal and official regulations.

Section 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties:

Appearance: Liquid at 20 °C and 101.3 kPa

Colour: Not available

Odour:	Not available
Odour threshold:	Not available
pH:	Not available
Melting/freezing point/range (°C):	-8 °C at 101.3 kPa
Boiling point/range (°C):	Decomposition from 158.5 °C during the boiling.
Flash point (°C):	126.5 °C at 1013 hPa
Evaporation rate:	Not available
Flammability limit - lower (%):	Not available
Flammability:	Non flammable
Ignition temperature (°C):	Not available
Upper/lower explosive limits:	Not available
Vapour pressure:	1.64 Pa at 29.9 °C
Vapour density:	Not available
Relative Density:	1.12 at 20 °C
Bulk density (kg/m³):	Not available
Water solubility (mg/l):	1000000 mg/L at 20 °C
n-Octanol/Water (log Po/w):	Log Kow (Log Pow): -0.46 at 21 °C
Auto-ignition temperature:	No ignition up to the decomposition at 158 °C. At 233.5 °C an ignition of the decomposition products was observed.
Decomposition temperature:	158.5 °C
Viscosity, dynamic (mPa.s):	Not available
Explosive properties:	Non explosive
Oxidising properties:	Oxidising: no
Molecular Formula:	C7H11NO2
Molecular Weight (g/mol):	141-141.5
9.2. Other information:	
Fat solubility(solvent-oil to be specified) etc:	Not available
Surface tension:	Not available
Dissociation constant in water(pKa):	Not available
Oxidation-reduction Potential:	Not available
Granulometry:	Not available

Section 10 Stability and reactivity

10.1 Reactivity:	The substance is stable under normal storage and handling conditions.
10.2 Chemical stability:	Stable at room temperature in closed containers under normal storage and handling conditions.
10.3 Possibility of hazardous reactions:	No dangerous reactions known.
10.4 Conditions to avoid:	Incompatible materials. Avoid exposure to high temperatures or direct sunlight. Avoid dust close to ignition sources.
10.5 Incompatible materials:	Strong oxidizing agents, Polymerizing initiators, Free radical initiators, Peroxides.
10.6 Hazardous decomposition products:	Hazardous decomposition products formed under fire conditions: Carbon oxides, nitrogen oxides (NOx).

Section 11 Toxicological information

11.1 Information on toxicological effects:

Acute toxicity:	
LD50(Oral, Rat):	588 mg/kg bw
LD50(Dermal, Rat):	> 2 000 mg/kg bw
LC50(Inhalation, Rat):	< 1 mg/L air (4h)
Skin corrosion/Irritation:	Not classified
Serious eye damage/Irritation:	Causes serious eye damage.
Respiratory or skin sensitization:	May cause an allergic skin reaction.
Germ cell mutagenicity:	Not classified
Carcinogenicity:	Not classified
Reproductive toxicity:	Not classified
STOT- single exposure:	Not classified
STOT-repeated exposure:	May cause damage to organs (state all organs affected, if known) through prolonged or repeated exposure (Route of exposure: Oral).
Aspiration hazard:	Not classified

Section 12 Ecological information

12.1 Toxicity:

Acute (short-term) toxicity:

LC50(96h, Fish): > 220 mg/L

EC50(48h, Daphnia magna): 120 mg/L

EC50(72h, Algae/aquatic plants): > 120 mg/L

Chronic (long-term) toxicity:

NOEC(Fish): Not available

NOEC(Daphnia magna): Not available

EC10(Algae/aquatic plants): >= 120 mg/L (72h)

12.2 Persistence and degradability: Under test conditions no biodegradation observed.

12.3 Bioaccumulative potential: Not available

12.4 Mobility in soil: Not available

12.5 Results of PBT and vPvB assessment: The substance is not considered a PBT/vPvB.

12.6 Other adverse effects: Not available

Section 13 Disposal considerations

13.1 Waste treatment methods: Dispose of in accordance with all applicable local and national regulations. Use recovery/recycling where feasible, otherwise incineration is the recommended method of disposal. Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near to the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods and then re-used or disposed of by landfill or incineration as appropriate. Do not incinerate closed containers.

Section 14 Transport information

	Land transport (ADR/RID)	Inland waterways (ADN)	Sea transport (IMDG)	Air transport (ICAO/IATA)
UN number	Not regulated	Not regulated	Not regulated	Not regulated
UN Proper shipping name	Not regulated	Not regulated	Not regulated	Not regulated
Transport hazard Class(es)	Not regulated	Not regulated	Not regulated	Not regulated
Packing group	Not regulated	Not regulated	Not regulated	Not regulated
Environmental hazards	No	No	No	No
Special precautions for user	See section 2.2	See section 2.2	See section 2.2	See section 2.2
Transport in bulk according to Annex II of Marpol and the IBC Code	Not regulated	Not regulated	Not regulated	Not regulated

Section 15 Regulatory information

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

Relevant information regarding authorization: Not applicable.

Relevant information regarding restriction: Not applicable.

Other EU regulations: Employment restrictions concerning young person must be observed.
For use only by technically qualified individuals.

Other National regulations: Not applicable

15.2 Chemical safety assessment YES ☒ NO ☐

Section 16 Other information

Issued By	Anstar Ltd
Revision Date	13/08/2024
Reason for modification	-

REFERENCE

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

[ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

ABBREVIATIONS AND ACRONYMS

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average
STEL: Short term exposure limit
LC50: Lethal Concentration 50%
LD50: Lethal Dose 50%
EC50: Effective Concentration 50%

STATEMENT

This safety technical specification (SDS) is prepared according to Regulation (EC) No 1907/2006 and Regulation (EU) No 2015/830. The data collected are from authoritative international databases and provided by enterprises themselves. Other information is based on our current state of knowledge. We try to make sure all the information is correct. However, due to the diversity of information sources and the limitations of our knowledge, this document is for user reference only. Users should make independent judgments about the suitability of this information for their specific purposes. We are not liable for any loss, damage or expense arising from or in connection with the handling, storage, use or disposal of the Products.

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