

Safety Data Sheet

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Version: 7.2

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

1.1 Product identifier

Trade name/designation:	Acetylacetone AnalaR NORMAPUR®
Product No.:	20092
CAS No.:	123-54-6
Other means of identification:	ACAC

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

Relevant identified uses:	General chemical reagent
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1.3 Details of the supplier of the safety data sheet

Singapore

VWR Singapore Pte Ltd.

Street	18 Gul Drive
Postal code/City	Singapore 629468
Telephone	+65 6505 0760
Telefax	+65 6264 3780
E-mail (competent person)	SDS@avantorsciences.com

1.4 Emergency phone number

Telephone	+65 (0) 6505 0760 (office hours: 8 am-5 pm)
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SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Hazard classes and hazard categories	Hazard statements
Flammable liquid, category 3	H226
Acute toxicity, category 4, oral	H302
Acute toxicity, category 3, dermal and inhalation	H311+H331

2.2 Label elements

Hazard pictograms



Signal word: Danger

Hazard statements	
H226	Flammable liquid and vapour.
H311+H331	Toxic in contact with skin or if inhaled.
H302	Harmful if swallowed.

Precautionary statements	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P243	Take precautionary measures against static discharge.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash ... thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P270	Do not eat, drink or smoke when using this product.
P242	Use only non-sparking tools.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/.../if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of water/...
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P362+P364	Take off contaminated clothing and wash it before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P311	Call a POISON CENTER/doctor/...
P312	Call a POISON CENTER/doctor/.../if you feel unwell.
P321	Specific treatment (see ... on this label).
P370+P378	In case of fire: Use... to extinguish.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container to ...

2.3 Other hazards

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

SECTION 3: Composition / information on ingredients

3.1 Substances

Substance name	Acetylacetone
Molecular formula	CH ₃ COCH ₂ COCH ₃
Molecular weight	100.12 g/mol
CAS No.	123-54-6

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

IF exposed or if you feel unwell: Call a POISON CENTRE or doctor/physician. If unconscious but breathing normally, place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person or a person with cramps. Change contaminated, saturated clothing. Do not leave affected person unattended.

After inhalation

Call a POISON CENTRE/doctor. Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

In case of skin contact

After contact with skin, wash immediately with plenty of water and soap. Remove contaminated, saturated clothing immediately. In case of skin reactions, consult a physician.

After eye contact:

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye. Remove contact lenses, if present and easy to do. Continue rinsing.

In case of ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Do NOT induce vomiting. Give nothing to eat or drink.

Self-protection of the first aider

First aider: Pay attention to self-protection!

4.2 Most important symptoms and effects, both acute and delayed

no data available

4.3 Indication of any immediate medical attention and special treatment needed

no data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water spray
ABC-powder
Carbon dioxide (CO₂)
Nitrogen

Extinguishing media which must not be used for safety reasons

no restriction

5.2 Special hazards arising from the substance or mixture

In case of fire may be liberated:
Carbon monoxide
Carbon dioxide (CO₂)

5.3 Advice for firefighters

DO NOT fight fire when fire reaches explosives.

Special protective equipment for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information

Do not allow run-off from fire-fighting to enter drains or water courses.

Do not inhale explosion and combustion gases.

Use caution when applying carbon dioxide in confined spaces. Carbon dioxide can displace oxygen.

Use water spray jet to protect personnel and to cool endangered containers.

In case of fire: Evacuate area.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

In case of major fire and large quantities: Remove persons to safety.

6.2 Environmental precautions

Discharge into the environment must be avoided.

6.3 Methods and material for containment and cleaning up

Spilled product must never be returned to the original container for recycling. Collect in closed and suitable containers for disposal.

6.4 Additional information

Clear spills immediately.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid:

Inhalation

Avoid contact with eyes and skin.

Use extractor hood (laboratory).

If handled uncovered, arrangements with local exhaust ventilation have to be used.

If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means.

Keep away from sources of ignition - No smoking.

Usual measures for fire prevention.

Take precautionary measures against static discharges.

May cause decomposition by long-term light influence.

Handle under (Gas):

Nitrogen

7.2 Conditions for safe storage, including any incompatibilities

Recommended storage temperature: 15-25°C

Storage class: 3

Keep container tightly closed and in a well-ventilated place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Does not contain substances above concentration limits fixing an occupational exposure limit.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

no data available

8.2.2 Personal protection equipment

no data available

Eye/face protection

no data available

Recommendation: no data available

Skin protection

no data available

By short-term hand contact

Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material:	0,425 mm
Breakthrough time::	30-60 min
Recommended glove articles:	VWR 112-0971

By long-term hand contact

Suitable material:	Butyl caoutchouc (butyl rubber)
Thickness of the glove material:	0,50 mm
Breakthrough time::	> 480 min
Recommended glove articles:	VWR 112-1570

Respiratory protection

no data available

Suitable respiratory protection apparatus:	no data available
Recommendation:	no data available
Suitable material:	no data available
Recommendation:	no data available

Additional information

no data available

8.2.3 Environmental exposure controls

no data available

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

(a) Appearance	
Physical state:	liquid
Colour:	colourless
(b) Odour:	no data available
(c) Odour threshold:	no data available

Safety relevant basic data

(d) pH:	6 (200 g/l; H ₂ O; 20 °C)
(e) Melting point/freezing point:	-23 °C
(f) Initial boiling point and boiling range:	140.4 °C (1013 hPa)
(g) Flash point:	30 °C
(h) Evaporation rate:	no data available
(i) Flammability (solid, gas):	Flammable liquid and vapour.
(j) Flammability or explosive limits	
Lower explosion limit:	2.4 % (v/v)
Upper explosion limit:	11.6 % (v/v)
(k) Vapour pressure:	8.5 hPa (20 °C)
(l) Vapour density:	3.45 (20 °C)
(m) Density:	0.96945 g/cm ³ (20 °C)
(n) Solubility(ies)	
Water solubility:	200 g/l (20 °C)
(o) Partition coefficient: n-octanol/water:	0.14 (20 °C)
(p) Auto-ignition temperature:	340 °C
(q) Decomposition temperature:	not applicable
(r) Viscosity	
Kinematic viscosity:	no data available
Dynamic viscosity:	0.6 mPa*s (20 °C)
(s) Explosive properties:	not applicable
(t) Oxidising properties:	not applicable
(u) Particle characteristics:	does not apply to liquids

9.2 Other information

Bulk density:	no data available
Refraction index:	1.44927 (589 nm; 16.7 °C)
Dissociation constant:	no data available
Surface tension:	no data available
Henry's Law Constant:	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

no data available

10.7 Additional information

no data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute effects

Acute oral toxicity:

LD50: > 575 mg/kg - Rat - (Merck KGaA)

LD50: 570 mg/kg - Rat - (Drug and Chemical Toxicology, 9, 133-146)

Acute dermal toxicity:

LD50: > 790 mg/kg - Rat - (Merck KGaA)

LD50: 790 mg/kg - Rabbit - (Drug and Chemical Toxicology, 9, 133-146)

Acute inhalation toxicity:

LC50: 1224 ppm - Rat - (IUCLID)

LC50: 5100 mg/m³ (4 h) - Rat - (OECD 403)

Irritant and corrosive effects

Primary irritation to the skin:

not applicable

Irritation to eyes:

not applicable

Irritation to respiratory tract:

not applicable

Respiratory or skin sensitisation

In case of skin contact: not sensitising

After inhalation: not sensitising

STOT-single exposure

not applicable

STOT-repeated exposure

not applicable

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Carcinogenicity

No indication of human carcinogenicity.

Germ cell mutagenicity

No indications of human germ cell mutagenicity exist.

Reproductive toxicity

No indications of human reproductive toxicity exist.

Aspiration hazard

not applicable

Other adverse effects

no data available

Additional information

no data available

SECTION 12: Ecological information

12.1 Ecotoxicity

Fish toxicity:

LC50: 107 mg/l (96 h) - Phipps, G.L., and G.W. Holcombe 1985. A Method for Aquatic Multiple Species Toxicant Testing: Acute Toxicity of 10 Chemicals to 5 Vertebrates and 2 Invertebrates. Environ.Pollut.Ser.A 38(2):141-157

Daphnia toxicity:

EC50: 75 mg/l (48 h) - Elnabarawy, M.T., A.N. Welter, and R.R. Robideau 1986. Relative Sensitivity of Three Daphnid Species to Selected Organic and Inorganic Chemicals. Environ.Toxicol.Chem. 5(4):393-398

LC50: 17300 mg/l (48 h) - Thurston, R.V., T.A. Gilfoil, E.L. Meyn, R.K. Zajdel, T.L. Aoki, and G.D. Veith 1985. Comparative Toxicity of Ten Organic Chemicals to Ten Common Aquatic Species. Water Res. 19(9):1145-1155

Algae toxicity:

no data available

Bacteria toxicity:

no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water: 0.14 (20 °C)

12.4 Mobility in soil:

no data available

12.5 Results of PBT/vPvB assessment

not applicable

12.6 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Appropriate disposal / Product

Dispose according to local legislation. Consult the appropriate local waste disposal expert about waste disposal. Send to a hazardous waste incinerator facility under observation of official regulations.

Waste code product: 160508

Appropriate disposal / Package

Dispose according to local legislation. Handle contaminated packages in the same way as the substance itself.

Additional information

no data available

SECTION 14: Transport information

Land transport (ADR/RID)

14.1	UN-No.:	2310
14.2	Proper Shipping Name:	PENTANE-2,4-DIONE
14.3	Class(es):	3 (6.1)
	Classification code:	FT1
	Hazard label(s):	3+6.1
14.4	Packing group:	III
14.5	Environmental hazards:	No
14.6	Special precautions for user:	
	Hazard identification number (Kemler No.):	36
	tunnel restriction code:	D/E
		(Passage forbidden through tunnels of category D when carried in bulk or in tanks. Passage forbidden through tunnels of category E.)

Sea transport (IMDG)

14.1	UN-No.:	2310
14.2	Proper Shipping Name:	PENTANE-2,4-DIONE

14.3	Class(es):	3 (6.1)
	Classification code:	
	Hazard label(s):	3+6.1
14.4	Packing group:	III
14.5	Environmental hazards:	No
	Marine pollutant:	No
14.6	Special precautions for user:	
	Segregation group:	-
	EmS-No.	F-E S-D
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code not relevant	

Air transport (ICAO-TI / IATA-DGR)

14.1	UN-No.:	2310
14.2	Proper Shipping Name:	PENTANE-2,4-DIONE
14.3	Class(es):	3 (6.1)
	Classification code:	
	Hazard label(s):	3+6.1
14.4	Packing group:	III
14.5	Special precautions for user:	

SECTION 15: Regulatory information

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

National regulations

- Workplace Safety and Health Act
- Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order
- Environmental Protection and Management Act (EPMA) - Second Schedule, Part 1, Control of Hazardous Substances
- Maritime and Port Authority of Singapore (MPA) - Dangerous Goods, Petroleum and Explosives Regulations

SECTION 16: Other information

Abbreviations and acronyms

ACGIH - American Conference of Governmental Industrial Hygienists
ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
AGS - Committee on Hazardous Substances (Ausschuss für Gefahrstoffe)
CLP - Regulation on Classification, Labelling and Packaging of Substances and Mixtures
DFG - German Research Foundation (Deutsche Forschungsgemeinschaft)
DNEL - Derived No Effect Level
Gestis - Information system on hazardous substances of the German Social Accident Insurance (Gefahrstoffinformationssystem der Deutschen Gesetzlichen Unfallversicherung)
IATA-DGR - International Air Transport Association-Dangerous Goods Regulations
ICAO-TI - International Civil Aviation Organization-Technical Instructions
IMDG - International Maritime Code for Dangerous Goods
KOSHA - Korea Occupational Safety and Health Agency
LTV - Long Term Value
NIOSH - National Institute for Occupational Safety and Health
OSHA - Occupational Safety & Health Administration
PBT - Persistent, Bioaccumulative and Toxic
PNEC - Predicted No Effect Concentration
RID - Regulation concerning the International Carriage of Dangerous Goods by Rail
STV - Short Term Value
SVHC - Substances of Very High Concern
vPvB - very Persistent, very Bioaccumulative

Key literature references and sources for data

This Safety Data Sheet has been prepared based on information available for public as TOXNET information, European Chemicals Agency (ECHA) substance dossier, papers from international cancer research institutes (IARC Monographs), U.S. National Toxicology Program data, U.S. Agency for Toxic Substances and Disease Control (ATSDR), PubChem websites and SDS from our raw material manufacturers.

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Additional information

Indication of changes

Section 7.1: Introduction of general occupation hygienic measures
Section 8: Update of NOEL data
Section 9: Introduction of particle characteristics
Section 16: Introduction of safety training advice
Section 16: Introduction of key literature references and sources of data

If you need an explanation of the change, contact the supplier (SDS@avantorsciences.com).

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.