

Dilutor, THM-100

Revision date: 02/23/2024

Product code: 1-104995

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1. Identification

Product identifier

Dilutor, THM-100

Substance name: acetonitrile; cyanomethane
REACH Registration Number: 01-2119471307-38-XXXX
CAS No: 75-05-8
Index No: 608-001-00-3
EC No: 200-835-2

Recommended use of the chemical and restrictions on use

Use of the substance/mixture

Laboratory chemical
Industrial uses: Uses of substances as such or in preparations at industrial sites
Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Uses advised against

Do not use for private purposes (household).

Details of the supplier of the safety data sheet

Company name: AnalytiChem GmbH
ACD
Street: Stempelstraße 6
Place: D-47167 Duisburg
Telephone: 0203/5194-0
Telefax: 0203/5194-290
E-mail: info@analytichem.de
Contact person: Abteilung Produktsicherheit
Telephone: 0203/5194-107/117
E-mail: produktsicherheit@analytichem.de
Internet: www.analytichem.de
Responsible Department: Abteilung Produktsicherheit

Emergency phone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

No data available

2. Hazard(s) identification

Classification of the chemical

Regulation (EC) No 1272/2008

Flam. Liq. 2; H225
Acute Tox. 4; H332
Acute Tox. 4; H312
Acute Tox. 4; H302
Eye Irrit. 2; H319

Full text of hazard statements: see SECTION 16.

Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

acetonitrile

Signal word: Danger

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Pictograms:



Hazard statements

H225 Highly flammable liquid and vapor
H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled
H319 Causes serious eye irritation

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing and eye protection/face protection.
P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P341 If inhaled: If breathing is difficult, 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.
P312 Call a poison center/doctor if you feel unwell.
P330 Rinse mouth.
P337+P313 If eye irritation persists: Get medical advice/attention.
P363 Wash contaminated clothing before reuse.
P370+P378 In case of fire: Use sand, extinguishing powder or alcohol-resistant foam to extinguish.
P403+P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified

No data available

3. Composition/information on ingredients

Substances

Sum formula: C2H3N
Molecular weight: 41,05 g/mol

Relevant ingredients

CAS No	Components			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
75-05-8	acetonitrile			100 %
	200-835-2	608-001-00-3	01-2119471307-38-XXXX	
	Flam. Liq. 2, Acute Tox. 4, Acute Tox. 4, Acute Tox. 4, Eye Irrit. 2; H225 H332 H312 H302 H319			

Full text of H and EUH statements: see section 16.

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Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Components	Quantity
		Specific Conc. Limits, M-factors and ATE	
75-05-8	200-835-2	acetonitrile	100 %
		inhalation: LC50 = 3587 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); dermal: LD50 = > 2000 mg/kg; oral: LD50 = 469 mg/kg	

Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

4. First-aid measures**Description of first aid measures****General information**

No data available

After inhalation

Provide fresh air.

If breathing is irregular or stopped, administer artificial respiration.

Call a physician immediately.

After contact with skin

Take off immediately all contaminated clothing and wash it before reuse.

Call a physician immediately.

After contact with eyes

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Rinse mouth immediately and drink plenty of water. Call a physician immediately.

Most important symptoms and effects, both acute and delayed

Headache

Dyspnoea

Irritant

Vomiting

Spasms

Unconsciousness

Respiratory complaints

Cardiac arrhythmias

Dizziness

Release of: Hydrogen cyanide (hydrocyanic acid)

Indication of any immediate medical attention and special treatment needed

Release of: Hydrogen cyanide (hydrocyanic acid)

5. Fire-fighting measures**Extinguishing media****Suitable extinguishing media**

Water spray jet, Carbon dioxide (CO₂), Foam, Extinguishing powder.

Unsuitable extinguishing media

no restriction

Specific hazards arising from the chemical

Combustible liquid.

Vapors are heavier than air, spread along floors and form explosive mixtures with air.

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Hazardous combustion products
In case of fire may be liberated:
Carbon dioxide (CO₂), Carbon monoxide
Hydrogen cyanide (hydrocyanic acid)
Nitrogen oxides (NO_x)
Beware of reignition.

Special protective equipment and precautions for fire-fighters

In case of fire: Wear self-contained breathing apparatus.
In case of fire and/or explosion do not breathe fumes.
Avoid contact with skin, eyes and clothes.

Additional information

Danger of bursting container.
Use water spray jet to protect personnel and to cool endangered containers.
Suppress gases/vapors/mists with water spray jet.
Move undamaged containers from immediate hazard area if it can be done safely.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

General advice

Keep away from sources of ignition - No smoking.
This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe).
Take precautionary measures against static discharge.

For non-emergency personnel

Provide adequate ventilation.
Use personal protection equipment.
Avoid contact with skin, eyes and clothes.
Remove persons to safety.
Emergency procedures
Consult an expert
Do not breathe dust/fume/gas/mist/vapors/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment (PPE): see section 8

Environmental precautions

Do not allow to enter into surface water or drains.
The vapors are heavier than air and can accumulate in high concentrations on the ground, in cavities, channels and cellars.
Danger of explosion

Methods and material for containment and cleaning up

For containment

Cover drains.
Prevent spread over a wide area (e.g. by containment or oil barriers).
Collect in closed and suitable containers for disposal.
Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Provide adequate ventilation.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wear breathing apparatus if exposed to vapors/dusts/aerosols.

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Reference to other sections

Safe handling: see section 7
Personal protection equipment (PPE): see section 8
Disposal: see section 13

7. Handling and storage

Precautions for safe handling

Advice on safe handling

Read label before use. Handle and open container with care.
When using do not eat, drink, smoke, sniff. Keep container tightly closed.
Use personal protection equipment. Use extractor hood (laboratory).
Do not breathe vapor or spray. Provide adequate ventilation.

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges.
Vapors may form explosive mixtures with air.

Advice on general occupational hygiene

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.
Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Further information on handling

Take off immediately all contaminated clothing and wash it before reuse.
Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary.
If handled uncovered, arrangements with local exhaust ventilation have to be used.

Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Hints on joint storage

national regulations

Further information on storage conditions

Keep cool. Protect from sunlight.
storage temperature: +5°C - +30°C

Specific end use(s)

Laboratory chemicals

8. Exposure controls/personal protection

Control parameters

Exposure limits

CAS No	Substance	ppm	mg/m ³	f/cc	Category	Origin
75-05-8	Acetonitrile	40	70		TWA (8 h)	PEL
		20	34		TWA (8 h)	REL
		20			TWA (8 h)	ACGIH-2023

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DNEL/DMEL values

CAS No	Substance		
DNEL type	Exposure route	Effect	Value
75-05-8	acetonitrile		
Worker DNEL, long-term	inhalation	systemic	68 mg/m ³
Worker DNEL, acute	inhalation	systemic	68 mg/m ³
Worker DNEL, long-term	inhalation	local	68 mg/m ³
Worker DNEL, acute	inhalation	local	68 mg/m ³
Worker DNEL, long-term	dermal	systemic	32,2 mg/kg bw/day
Consumer DNEL, long-term	inhalation	systemic	4,8 mg/m ³
Consumer DNEL, acute	inhalation	systemic	220 mg/m ³
Consumer DNEL, long-term	inhalation	local	4,8 mg/m ³
Consumer DNEL, acute	inhalation	local	22 mg/m ³
Consumer DNEL, acute	oral	systemic	0,6 mg/kg bw/day

PNEC values

CAS No	Substance	
Environmental compartment	Value	
75-05-8	acetonitrile	
Freshwater	10 mg/l	
Freshwater (intermittent releases)	10 mg/l	
Marine water	1 mg/l	
Freshwater sediment	7,53 mg/kg	
Micro-organisms in sewage treatment plants (STP)	32 mg/l	
Soil	2,41 mg/kg	

Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

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

Individual protection measures, such as personal protective equipment

Eye/face protection

Suitable eye protection: goggles.

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Skin protection

Flame-retardant protective clothing. Wear anti-static footwear and clothing

Respiratory protection

Respiratory protection necessary at: aerosol or mist formation

Filtering device with filter or ventilator filtering device of type: A

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

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Thermal hazards

No data available

Environmental exposure controls

Do not allow to enter into surface water or drains.

Due to danger of explosion, prevent leakage of vapors into cellars, flues and ditches.

Danger of explosion

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state:	Liquid
Color:	colorless
Odor:	like: Ether
Odour threshold:	No data available
Melting point/freezing point:	-45,7 °C
Boiling point or initial boiling point and boiling range:	81,6 °C
Flammability:	No data available
Lower explosion limits:	3,0 vol. %
Upper explosion limits:	17 vol. %
Flash point:	2 °C
Auto-ignition temperature:	524 °C
Decomposition temperature:	No data available
pH-Value:	No data available
Viscosity / kinematic:	No data available
Water solubility:	Soluble in: Water
Solubility in other solvents	not determined
Dissolution rate:	No data available
Partition coefficient n-octanol/water:	log Pow: 0,29
Dispersion stability:	No data available
Vapor pressure:	97 hPa
(at 20 °C)	
Vapor pressure:	330 hPa hPa
(at 50 °C)	
Density:	0,786 g/cm ³
Relative density:	No data available
Bulk density:	No data available
Relative vapour density:	No data available
Particle characteristics:	No data available

Other information

Information with regard to physical hazard classes

Explosive properties

Vapors are heavier than air, spread along floors and form explosive mixtures with air.

Sustaining combustion: No data available

Self-ignition temperature

Solid: not applicable

Gas: not applicable

Oxidizing properties

Not oxidising.

Other safety characteristics

Evaporation rate: No data available

Solvent separation test: No data available

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Solvent content:	100%
Solid content:	No data available
Sublimation point:	No data available
Softening point:	No data available
Pour point:	No data available
No data available:	
Viscosity / dynamic: (at 25 °C)	0,316 mPa·s
Flow time:	No data available

Further Information

No data available

10. Stability and reactivity

Chemical stability

Keep away from heat.

Possibility of hazardous reactions

Violent reaction with: Base, Reducing agent, strong
Danger of explosion: sulphuric acid, NO₃, Perchlorate, Perchloracid
Ignition hazard: Oxidising agent, Nitric acid, Nitrogen dioxide
Possibility of hazardous reactions: Acid

Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.
Vapors may form explosive mixtures with air.

Incompatible materials

Rubber articles
Plastic articles

Hazardous decomposition products

SECTION 5: Fire fighting measures

Further information

No data available

11. Toxicological information

Information on toxicological effects

Toxicokinetics, metabolism and distribution

No data available

Acute toxicity

Harmful if swallowed
Harmful in contact with skin
Harmful if inhaled
Mucous membrane irritations in the mouth, throat, esophagus and gastrointestinal tract.

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CAS No	Components				
	Exposure route	Dose	Species	Source	Method
75-05-8	acetonitrile				
	oral	LD50 469 mg/kg	Mouse	Study report (1998)	OECD Guideline 401
	dermal	LD50 > 2000 mg/kg	Rabbit	Study report (1997)	OECD Guideline 402
	inhalation (4 h) vapour	LC50 3587 mg/l	Mouse	Study report (1998)	OECD Guideline 403
	inhalation dust/mist	ATE 1,5 mg/l			

Irritation and corrosivity

Serious eye damage/eye irritation: Causes serious eye irritation

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Sensitizing effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

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.

Specific target organ toxicity (STOT) - single exposure

Based on available data, the classification criteria are not met.

Specific target organ toxicity (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.

Route(s) of Entry

No data available

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Practical experience

No data available

Information on other hazards

Endocrine disrupting properties

No data available

Other information

Headache

Dyspnoea

Irritant

Vomiting

Spasms

Unconsciousness

Respiratory complaints

Cardiac arrhythmias

Dizziness

Release of: Hydrogen cyanide (hydrocyanic acid)

Further information

No data available

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12. Ecological information

Ecotoxicity

Based on available data, the classification criteria are not met.

CAS No	Components					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
75-05-8	acetonitrile					
	Acute fish toxicity	LC50 mg/l	1640	96 h	Pimephales promelas	Review article or handbook (1984)
	Acute algae toxicity	ErC50 mg/l	3560	72 h	Phaeodactylum tricornutum	Study report (2010)
	Acute crustacea toxicity	EC50 mg/l	3600	48 h	Daphnia magna	Bull. Environ. Contam. Toxicol. 57:655-6
	Fish toxicity	NOEC	102 mg/l	7 d	Oryzias latipes	Study report (1996)
	Crustacea toxicity	NOEC	960 mg/l	21 d	Daphnia magna	Study report (1996)
						Guideline not specified
						ISO 10253
						other: OECD Guidelines for Testing Chemi
						OECD Guideline 204
						other: OECD Guideline 202

Persistence and degradability

70 %; 21 d
OECD-310
Readily biodegradable (according to OECD criteria).

Bioaccumulative potential

No indication of bioaccumulation potential.

Partition coefficient n-octanol/water

CAS No	Components	Log Pow
75-05-8	acetonitrile	0,29

BCF

CAS No	Components	BCF	Species	Source
75-05-8	acetonitrile	3		HSDB (2009)

Mobility in soil

log Koc: 1,21 (MSDS)

Results of PBT and vPvB assessment

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

Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

Other adverse effects

Discharge into the environment must be avoided.

Further information

Do not empty into drains.

13. Disposal considerations

Waste treatment methods

Disposal recommendations

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.
Send to a physico-chemical treatment facility under observation of official regulations.
Do not empty into drains.

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Contaminated packaging

Handle contaminated packages in the same way as the substance itself. The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

14. Transport information

Land transport (ADR/RID)

UN number or ID number: UN 1648
UN proper shipping name: ACETONITRILE
Transport hazard class(es): 3
Packing group: II
Hazard label: 3
Classification Code: F1
Limited quantity: 1 L
Excepted quantity: E2
Transport category: 2
Hazard No: 33
Tunnel restriction code: D/E

Inland waterways transport (ADN)

UN number or ID number: UN 1648
UN proper shipping name: ACETONITRILE
Transport hazard class(es): 3
Packing group: II
Hazard label: 3
Classification Code: F1
Limited quantity: 1 L
Excepted quantity: E2

Marine transport (IMDG)

UN number or ID number: UN 1648
UN proper shipping name: ACETONITRILE
Transport hazard class(es): 3
Packing group: II
Hazard label: 3
Special Provisions: -
Limited quantity: 1 L
Excepted quantity: E2
EmS: F-E, S-D

Air transport (ICAO-TI/IATA-DGR)

UN number or ID number: UN 1648
UN proper shipping name: ACETONITRILE
Transport hazard class(es): 3
Packing group: II
Hazard label: 3
Limited quantity Passenger: 1 L
Passenger LQ: Y341
Excepted quantity: E2
IATA-packing instructions - Passenger: 353
IATA-max. quantity - Passenger: 5 L
IATA-packing instructions - Cargo: 364
IATA-max. quantity - Cargo: 60 L

Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

Special precautions for user

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Warning: Combustible liquid.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

15. Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 40, Entry 75

Information according to Directive
2012/18/EU (SEVESO III):

P5c FLAMMABLE LIQUIDS

National regulatory information

Employment restrictions:

Observe employment restrictions for young people.

Water hazard class (D):

2 - obviously hazardous to water

Skin resorption/Sensitization:

Permeates easily through outer skin and causes poisoning.

16. Other information

Abbreviations and acronyms

Flam. Liq: Flammable liquids

Acute Tox: Acute toxicity

Eye Irrit: Eye irritation

ADR: Accord européen sur le transport 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 Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

Relevant H statements (full text)

H225 Highly flammable liquid and vapor

H302 Harmful if swallowed

H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled

H312 Harmful in contact with skin

H319 Causes serious eye irritation

H332 Harmful if inhaled

Other data

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. Provide appropriate information, instructions and training to users.