

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

1.1. Product identifier

Product form	: Substance
Trade name	: Haltanol
Chemical name	: Isobutyraldehyde Trimer
IUPAC name	: Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol
EC-No.	: 246-771-9
CAS-No.	: 25265-77-4
REACH registration No	: 01-2119441305-48
Type of product	: Isomer mixture
Formula	: C ₁₂ H ₂₄ O ₃
Synonyms	: 1,3-pentanediol, 2,2,4-trimethyl-, monoisobutyrate / 2,2,4-trimethylpentane-1,3-diol isobutyrate / CS12 / Haltanol / isobutyraldehyde Tishchenko trimer / isobutyric acid ester with 2,2,4-trimethyl-1,3-pentanediol / isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol / methylpropanoic acid monoester with 2,2,4-trimethyl-1,3-pentanediol / propanoic acid, 2-methyl-, monoester with 2,2,4-trimethyl-1,3-pentanediol / propionic acid, 2-methyl-, monoester with 2,2,4-trimethyl-1,3-pentanediol / propionic acid, methyl-, monoester with 2,2,4-trimethyl-1,3-pentanediol
Product group	: Trade product
BIG No	: 26793

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

1.2.1. Relevant identified uses

Industrial/Professional use spec	: Industrial For professional use only
Use of the substance/mixture	: Chemical raw material Solvent

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Manufacturer

Monument Chemical
16717 Jacintoport Blvd.
US- 77015 Houston, TX
USA
T 832-376-2000
sds@monumentchemical.com - www.monumentchemical.com

Distributor

Monument Chemical B.V.
Ketenislaan 3
BE- B-9130 Kallo
Belgium
T +32 3 570 28 11
sds@monumentchemical.com - www.monumentchemical.com

1.4. Emergency telephone number

Emergency number	: 24 HR CHEMTREC: 1-800-424-9300 (International +1 703-741-5970); 24 HR Emergency Assistance: 1-832-376-2026
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Hazardous to the aquatic environment – Chronic Hazard, Category 3 H412
Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Harmful to aquatic life with long lasting effects.

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according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

2.2. Label elements

According to EC directives or the corresponding national regulations there is no labelling obligation for this product.
No labelling applicable

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Isobutyraldehyde Trimer	CAS-No.: 25265-77-4 EC-No.: 246-771-9 REACH-no: 01-2119441305-48	≥ 98.5	Aquatic Chronic 3, H412

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

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice.
First-aid measures after inhalation	: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Rinse with water. Soap may be used.
First-aid measures after eye contact	: Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing.
First-aid measures after ingestion	: Rinse mouth with water. Call Poison Information Centre (www.big.be/antigif.html). Consult a doctor/medical service if you feel unwell.

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

Symptoms/effects	: Not expected to present a significant hazard under anticipated conditions of normal use.
Symptoms/effects after skin contact	: Red skin.
Symptoms/effects after eye contact	: Slight irritation. Redness of the eye tissue.
Chronic symptoms	: No effects known.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Quick-acting ABC powder extinguisher. Quick-acting BC powder extinguisher. Quick-acting class B foam extinguisher. Quick-acting CO2 extinguisher. Class B foam (not alcohol-resistant).
Unsuitable extinguishing media	: Water (quick-acting extinguisher, reel); risk of puddle expansion. Water; risk of puddle expansion.

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5.2. Special hazards arising from the substance or mixture

- Fire hazard : DIRECT FIRE HAZARD: Combustible. INDIRECT FIRE HAZARD: Temperature above flashpoint: higher fire/explosion hazard.
- Hazardous decomposition products in case of fire : Upon combustion: CO and CO₂ are formed.

5.3. Advice for firefighters

- Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: have neighbourhood close doors and windows.
- Firefighting instructions : No specific fire-fighting instructions required.
- Protection during firefighting : Heat/fire exposure: self-contained breathing apparatus (EN 136 + EN 137).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves (EN 374). Protective clothing (EN 14605 or EN 13034).
- Emergency procedures : Mark the danger area. No naked flames.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released product, collect/pump into suitable containers. Plug the leak, cut off the supply.
- Methods for cleaning up : Take up liquid spill into inert absorbent material, e.g.: sand/earth. Scoop absorbed substance into closing containers. Clean contaminated surfaces with a soap solution. Wash clothing and equipment after handling.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

See Section 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Keep away from naked flames/heat. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Thoroughly clean/dry the installation before use. Keep container tightly closed.
- Hygiene measures : Observe normal hygiene standards.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use. Store in a well-ventilated place. Keep cool.
- Incompatible products : Strong bases. Strong acids.
- Incompatible materials : Sources of ignition. Direct sunlight.
- Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources.
- Information on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids.
- Storage area : Ventilation at floor level. Meet the legal requirements. Store at ambient temperature.
- Special rules on packaging : SPECIAL REQUIREMENTS: closing. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

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7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

Isobutyraldehyde Trimer (25265-77-4)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	13.9 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	49 mg/m ³
DNEL/DMEL (General population)	
Long-term - systemic effects, oral	8.33 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	14.5 mg/m ³
Long-term - systemic effects, dermal	8.33 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0.015 mg/l
PNEC aqua (marine water)	0.0015 mg/l
PNEC aqua (intermittent, freshwater)	0.15 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0.78 mg/kg dwt
PNEC sediment (marine water)	0.078 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.147 mg/kg dwt
PNEC (Oral)	
PNEC oral (secondary poisoning)	66.7 mg/kg food
PNEC (STP)	
PNEC sewage treatment plant	7.5 mg/l

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

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8.2.2. Personal protection equipment

Personal protective equipment:

Avoid all unnecessary exposure.

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Safety glasses (EN 166)

8.2.2.2. Skin protection

Skin and body protection:

Protective clothing (EN 14605 or EN 13034)

Hand protection:

Gloves

Other skin protection

Materials for protective clothing:

Good resistance: Polyvinylchloride (PVC)

8.2.2.3. Respiratory protection

Respiratory protection:

High gas/vapour concentration: full face mask with filter type A

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Colourless.
Appearance	: Liquid.
Molecular mass	: 216.36 g/mol
Odour	: Almost odourless. Characteristic odour.
Odour threshold	: Not available
Melting point	: < -70.25 °C Atm. press.: 1 Decomposition: 'no' Sublimation: 'no'
Freezing point	: Not available
Boiling point	: 255 – 261.5 °C Atm. press.: 102,4 kPa Decomposition: 'no'
Flammability	: Non flammable.
Explosive limits	: 0.6 – 4.2 vol %
Lower explosion limit	: 0.6 vol %
Upper explosion limit	: 4.2 vol %
Flash point	: 122 °C Atm. press.: 101,325 kPa
Auto-ignition temperature	: 393 °C (T2)
Decomposition temperature	: Not available
pH	: Not available
Viscosity, kinematic	: 13.579 mm ² /s
Viscosity, dynamic	: 12.9 mPa.s Temp.: 'other:' Parameter: 'dynamic viscosity (in mPa s)'

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Solubility	: Insoluble in water. Water: 2 g/100ml
Partition coefficient n-octanol/water (Log Kow)	: Not available
Partition coefficient n-octanol/water (Log Pow)	: 3.47 (Experimental value)
Vapour pressure	: 1.3 Pa Temp.: 20 °C
Vapour pressure at 50°C	: Not available
Density	: 950 kg/m ³
Relative density	: 0.95
Relative vapour density at 20°C	: 7.5
Relative density of saturated gas/air mixture	: 1
Particle characteristics	: Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Explosion limits : 0.6 – 4.2 vol %

9.2.2. Other safety characteristics

VOC content : 0 %
Other properties : Gas/vapour heavier than air at 20°C, Slightly volatile

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts violently with (strong) oxidizers.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Isobutyraldehyde Trimer (25265-77-4)

LD50 oral rat	3200 mg/kg (Rat, Oral)
LD50 dermal rabbit	> 15200 mg/kg (Rabbit, Dermal)

Skin corrosion/irritation	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Serious eye damage/irritation	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Respiratory or skin sensitisation	: Not classified

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Additional information	: Based on available data, the classification criteria are not met
Germ cell mutagenicity	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Carcinogenicity	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Reproductive toxicity	: Not classified
Additional information	: Based on available data, the classification criteria are not met
STOT-single exposure	: Not classified
Additional information	: Based on available data, the classification criteria are not met
STOT-repeated exposure	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Aspiration hazard	: Not classified
Additional information	: Based on available data, the classification criteria are not met

Isobutyraldehyde Trimer (25265-77-4)

Viscosity, kinematic	13.579 mm ² /s
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11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

11.2.2. Other information

Potential adverse human health effects and symptoms	: Based on available data, the classification criteria are not met
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SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.
Ecology - air	: Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water	: Harmful to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Harmful to aquatic life with long lasting effects.

Isobutyraldehyde Trimer (25265-77-4)

LC50 - Fish [1]	33 mg/l Test organisms (species): Pimephales promelas
LC50 - Fish [2]	> 19 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Crustacea [1]	147.8 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	18.4 mg/l (Selenastrum capricornutum, Growth)

12.2. Persistence and degradability

Isobutyraldehyde Trimer (25265-77-4)

Persistence and degradability	Readily biodegradable in water.
Chemical oxygen demand (COD)	2.1 g O ₂ /g substance
ThOD	2.4 g O ₂ /g substance

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12.3. Bioaccumulative potential

Isobutyraldehyde Trimer (25265-77-4)

BCF - Fish [1]	60.03 mg/l
Partition coefficient n-octanol/water (Log Pow)	3.47 (Experimental value)
Bioaccumulative potential	Not established.

12.4. Mobility in soil

Isobutyraldehyde Trimer (25265-77-4)

Organic Carbon Normalized Adsorption Coefficient (Log Koc)	1.468 QSAR
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12.5. Results of PBT and vPvB assessment

Isobutyraldehyde Trimer (25265-77-4)

Results of PBT assessment	The product does not meet the PBT and vPvB classification criteria
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12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

Additional information : Not dangerous for the ozone layer. Mild water pollutant (surface water). Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations : Do not discharge into surface water. Remove waste in accordance with local and/or national regulations. Remove to an authorized waste incinerator for solvents with energy recovery.
Additional information : Can be considered as non hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.
Ecology - waste materials : Avoid release to the environment.
European List of Waste (LoW) code : 07 01 99 - wastes not otherwise specified

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

14.1. UN number or ID number

UN-No. (ADR) : Not regulated
UN-No. (IMDG) : Not regulated
UN-No. (IATA) : Not regulated
UN-No. (ADN) : Not regulated
UN-No. (RID) : Not regulated

14.2. UN proper shipping name

Proper Shipping Name (ADR) : Not regulated
Proper Shipping Name (IMDG) : Not regulated
Proper Shipping Name (IATA) : Not regulated
Proper Shipping Name (ADN) : Not regulated
Proper Shipping Name (RID) : Not regulated

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14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : Not regulated

IMDG

Transport hazard class(es) (IMDG) : Not regulated

IATA

Transport hazard class(es) (IATA) : Not regulated

ADN

Transport hazard class(es) (ADN) : Not regulated

RID

Transport hazard class(es) (RID) : Not regulated

14.4. Packing group

Packing group (ADR) : Not regulated

Packing group (IMDG) : Not regulated

Packing group (IATA) : Not regulated

Packing group (ADN) : Not regulated

Packing group (RID) : Not regulated

14.5. Environmental hazards

Dangerous for the environment : No

Marine pollutant : No

Other information : No supplementary information available

14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

Inland waterway transport

Not regulated

Rail transport

Not regulated

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

Not listed on REACH Annex XVII

REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

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REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)

POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

Ozone Regulation (1005/2009)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

VOC Directive (2004/42)

VOC content : 0 %

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Germany

Water hazard class (WGK) : WGK 1, Slightly hazardous to water (Classification according to VwVwS, Annex 3).

Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

ABM category : B(3) - hazardous for aquatic organisms

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

SZW-lijst van reprotoxische stoffen – Borstvoeding : The substance is not listed

SZW-lijst van reprotoxische stoffen – Vruchtbaarheid : The substance is not listed

SZW-lijst van reprotoxische stoffen – Ontwikkeling : The substance is not listed

Switzerland

Storage class (LK) : LK 10/12 - Liquids

15.2. Chemical safety assessment

A chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes			
Section	Changed item	Change	Comments

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)

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Abbreviations and acronyms:	
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

Full text of H- and EUH-statements:	
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
H412	Harmful to aquatic life with long lasting effects.

The classification complies with : ATP 12

Safety Data Sheet (SDS), EU

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