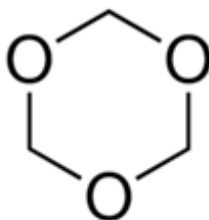


SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	: Substance
Trade name	: 1,3,5-Trioxane For synthesis
IUPAC name	: 1,3,5-Trioxane
EC Index-No.	: 605-002-00-0
EC-No.	: 203-812-5
CAS-No.	: 110-88-3
Product code	: 06369
Formula	: C ₃ H ₆ O ₃
Chemical structure	:



Synonyms : Metaformaldehyde, Trioxymethylene, sym.-Trioxane

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
Use of the substance/mixture	: Laboratory chemicals Manufacture of substances

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Manufacturer

LOBA CHEMIE PVT.LTD.
107 Wode House Road, Jehangir Villa, Colaba
400005 Mumbai - INDIA
T +91 22 6663 6663 - F +91 22 6663 6699
info@lobachemie.com - www.lobachemie.com

1.4. Emergency telephone number

Emergency number : + 91 22 6663 6663 (9:00am - 6:00 pm)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flammable solids, Category 1	H228
Reproductive toxicity, Category 2	H361d
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335

Full text of H-statements: see section 16

Adverse physicochemical, human health and environmental effects

Flammable solid. Suspected of damaging fertility or the unborn child. May cause respiratory irritation.

1,3,5-Trioxane For synthesis

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS02

GHS07

GHS08

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H228 - Flammable solid.

H335 - May cause respiratory irritation.

H361d - Suspected of damaging the unborn child.

Precautionary statements (CLP) :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.

No smoking.

P261 - Avoid breathing dust, fume, gas, mist, spray, vapours.

P280 - Wear protective clothing, eye protection, face protection, protective gloves.

P308+P313 - IF exposed or concerned: Get medical advice/attention.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type

: Mono-constituent

Name	Product identifier	%
1,3,5-Trioxane For synthesis	CAS-No.: 110-88-3 EC-No.: 203-812-5 EC Index-No.: 605-002-00-0	100

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general

: IF exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation

: Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.

First-aid measures after skin contact

: Wash skin with plenty of water.

First-aid measures after eye contact

: Rinse eyes with water as a precaution.

First-aid measures after ingestion

: Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after inhalation

: May cause respiratory irritation.

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

: Water spray. Dry powder. Foam.

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according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable solid.
Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid breathing dust, fume, gas, mist, spray, vapours.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Mechanically recover the product. Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Avoid breathing dust, fume, gas, mist, spray, vapours.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Ground/bond container and receiving equipment.

Storage conditions : Keep cool. Protect from sunlight. Keep away from ignition sources. Store locked up. Store in a well-ventilated place. Keep container tightly closed.

Storage temperature : Below 30°C

7.3. Specific end use(s)

No additional information available

1,3,5-Trioxane For synthesis

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according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

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

1,3,5-Trioxane For synthesis (110-88-3)	
DNEL/DMEL (Workers)	
Acute - local effects, inhalation	20 mg/m ³
Long-term - systemic effects, dermal	3 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	24 mg/m ³
Long-term - local effects, inhalation	10 mg/m ³
PNEC (Water)	
PNEC aqua (freshwater)	4 mg/l
PNEC aqua (marine water)	1.635 mg/l
PNEC aqua (intermittent, freshwater)	40 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	8.73 mg/kg dwt
PNEC sediment (marine water)	0.873 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.74 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	9.8 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.

8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Safety glasses

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8.2.2.2. Skin protection

Hand protection:

Protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Crystals. Crystalline powder. Flakes.
Molecular mass	: 90.08 g/mol
Colour	: Colorless to white.
Odour	: No data available.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 60 – 63 °C
Freezing point	: Not applicable
Boiling point	: 112 – 115 °C
Flash point	: 45 °C (Closed cup)
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable solid.
Vapour pressure	: 11 hPa at 20°C
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.38 g/cm ³ at 20°C
Solubility	: Water: 172 g/l at 20°C
Partition coefficient n-octanol/water (Log Pow)	: -0.5 at 25°C
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: Not applicable
Lower explosive limit (LEL)	: 3.6 vol %
Upper explosive limit (UEL)	: 29 vol %

9.2. Other information

Additional information : No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Flammable solid.

10.2. Chemical stability

Stable under normal conditions.

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10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

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

1,3,5-Trioxane For synthesis (110-88-3)

LD50 dermal rabbit	> 3980 mg/kg bodyweight Animal: rabbit, Animal sex: male
LC50 Inhalation - Rat	> 39.2 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Suspected of damaging the unborn child.

1,3,5-Trioxane For synthesis (110-88-3)

LOAEL (animal/male, F0/P)	850 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: other:Test conduct was similar to OECD Guideline 478; the study was a combination between Dominant lethal assay and Fertility study.
NOAEL (animal/male, F0/P)	850 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: other:Test conduct was similar to OECD Guideline 478; the study was a combination between Dominant lethal assay and Fertility study.
NOAEL (animal/female, F0/P)	580 mg/kg bodyweight Animal: rat, Animal sex: female
STOT-single exposure	: May cause respiratory irritation.
STOT-repeated exposure	: Not classified

1,3,5-Trioxane For synthesis (110-88-3)

LOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity in Rodents)
LOAEC (inhalation, rat, vapour, 90 days)	< 0.38 mg/l air Animal: rat, Guideline: OECD Guideline 412 (Subacute Inhalation Toxicity: 28-Day Study)
NOAEC (inhalation, rat, vapour, 90 days)	3.62 mg/l air Animal: rat, Guideline: OECD Guideline 412 (Subacute Inhalation Toxicity: 28-Day Study)
Aspiration hazard	: Not classified

1,3,5-Trioxane For synthesis (110-88-3)

Viscosity, kinematic	Not applicable
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SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

1,3,5-Trioxane For synthesis (110-88-3)	
LC50 - Fish [1]	4000 mg/l Test organisms (species): Leuciscus idus
EC50 - Crustacea [1]	> 1000 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 500 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

1,3,5-Trioxane For synthesis (110-88-3)	
Partition coefficient n-octanol/water (Log Pow)	-0.5 at 25°C

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

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

14.1. UN number

UN-No. (ADR) : UN 1325

UN-No. (IMDG) : UN 1325

UN-No. (IATA) : UN 1325

UN-No. (ADN) : UN 1325

UN-No. (RID) : UN 1325

14.2. UN proper shipping name

Proper Shipping Name (ADR) : FLAMMABLE SOLID, ORGANIC, N.O.S.

Proper Shipping Name (IMDG) : FLAMMABLE SOLID, ORGANIC, N.O.S.

Proper Shipping Name (IATA) : Flammable solid, organic, n.o.s.

Proper Shipping Name (ADN) : FLAMMABLE SOLID, ORGANIC, N.O.S.

1,3,5-Trioxane For synthesis

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Proper Shipping Name (RID)	: FLAMMABLE SOLID, ORGANIC, N.O.S.
Transport document description (ADR)	: UN 1325 FLAMMABLE SOLID, ORGANIC, N.O.S. (1,3,5-Trioxane), 4.1, II, (E)
Transport document description (IMDG)	: UN 1325 FLAMMABLE SOLID, ORGANIC, N.O.S. (1,3,5-Trioxane), 4.1, II
Transport document description (IATA)	: UN 1325 Flammable solid, organic, n.o.s., 4.1, II
Transport document description (ADN)	: UN 1325 FLAMMABLE SOLID, ORGANIC, N.O.S., 4.1, II
Transport document description (RID)	: UN 1325 FLAMMABLE SOLID, ORGANIC, N.O.S., 4.1, II

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR)	: 4.1
Danger labels (ADR)	: 4.1



IMDG

Transport hazard class(es) (IMDG)	: 4.1
Danger labels (IMDG)	: 4.1



IATA

Transport hazard class(es) (IATA)	: 4.1
Danger labels (IATA)	: 4.1



ADN

Transport hazard class(es) (ADN)	: 4.1
Danger labels (ADN)	: 4.1



RID

Transport hazard class(es) (RID)	: 4.1
Danger labels (RID)	: 4.1



14.4. Packing group

Packing group (ADR)	: II
Packing group (IMDG)	: II
Packing group (IATA)	: II

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Packing group (ADN) : II
Packing group (RID) : II

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

Classification code (ADR) : F1
Special provisions (ADR) : 274
Limited quantities (ADR) : 1kg
Excepted quantities (ADR) : E2
Packing instructions (ADR) : P002, IBC08
Special packing provisions (ADR) : B4
Mixed packing provisions (ADR) : MP10
Portable tank and bulk container instructions (ADR) : T3
Portable tank and bulk container special provisions (ADR) : TP33
Tank code (ADR) : SGAN
Vehicle for tank carriage : AT
Transport category (ADR) : 2
Special provisions for carriage - Packages (ADR) : V11
Hazard identification number (Kemler No.) : 40
Orange plates :



Tunnel restriction code (ADR) : E
EAC code : 1Z

Transport by sea

Special provisions (IMDG) : 274
Limited quantities (IMDG) : 1 kg
Excepted quantities (IMDG) : E2
Packing instructions (IMDG) : P002
IBC packing instructions (IMDG) : IBC08
IBC special provisions (IMDG) : B21, B4
Tank instructions (IMDG) : T3
Tank special provisions (IMDG) : TP33
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-G
Stowage category (IMDG) : B
Segregation (IMDG) : SG72

Air transport

PCA Excepted quantities (IATA) : E2
PCA Limited quantities (IATA) : Y441
PCA limited quantity max net quantity (IATA) : 5kg
PCA packing instructions (IATA) : 445
PCA max net quantity (IATA) : 15kg
CAO packing instructions (IATA) : 448
CAO max net quantity (IATA) : 50kg
Special provisions (IATA) : A3, A803
ERG code (IATA) : 3L

Inland waterway transport

Classification code (ADN) : F1
Special provisions (ADN) : 274
Limited quantities (ADN) : 1 kg

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Excepted quantities (ADN) : E2
Equipment required (ADN) : PP
Number of blue cones/lights (ADN) : 1

Rail transport

Classification code (RID) : F1
Special provisions (RID) : 274
Limited quantities (RID) : 1kg
Excepted quantities (RID) : E2
Packing instructions (RID) : P002, IBC08
Special packing provisions (RID) : B4
Mixed packing provisions (RID) : MP10
Portable tank and bulk container instructions (RID) : T3
Portable tank and bulk container special provisions (RID) : TP33
Tank codes for RID tanks (RID) : SGAN
Transport category (RID) : 2
Special provisions for carriage – Packages (RID) : W1
Colis express (express parcels) (RID) : CE10
Hazard identification number (RID) : 40

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

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

EU restriction list (REACH Annex XVII)	
Reference code	Applicable on
40.	1,3,5-Trioxane For synthesis

1,3,5-Trioxane For synthesis is not on the REACH Candidate List

1,3,5-Trioxane For synthesis is not on the REACH Annex XIV List

1,3,5-Trioxane For synthesis is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

1,3,5-Trioxane For synthesis is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

Germany

Employment restrictions : Observe restrictions according Act on the Protection of Working Mothers (MuSchG)
Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG)

Water hazard class (WGK) : WGK 1, Slightly hazardous to water (Classification according to AwSV; ID No. 2086)

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

Netherlands

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

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

NIET-limitatieve lijst van voor de voortplanting

giftige stoffen – Borstvoeding

NIET-limitatieve lijst van voor de voortplanting : The substance is not listed

giftige stoffen – Vruchtbaarheid

NIET-limitatieve lijst van voor de voortplanting : 1,3,5-Trioxane For synthesis is listed

giftige stoffen – Ontwikkeling

Denmark

Class for fire hazard : Class II-1

Store unit : 5 liter

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Classification remarks	: R10 <H228;H335;H361d>; Emergency management guidelines for the storage of flammable liquids must be followed
Danish National Regulations	: Young people below the age of 18 years are not allowed to use the product Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

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)
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

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Abbreviations and acronyms	
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements	
Flam. Sol. 1	Flammable solids, Category 1
Repr. 2	Reproductive toxicity, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H228	Flammable solid.
H335	May cause respiratory irritation.
H361d	Suspected of damaging the unborn child.

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.