SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Revision Date 19.07.2018          Version 7.3

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

1.1 Product identifier

Catalogue No. 100272

Product name 2-Propanol standard for the analysis of tobacco

REACH Registration Number This product is a mixture. REACH Registration Number see section 3.

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

Identified uses Reagent for analysis

For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).

1.3 Details of the supplier of the safety data sheet

Company Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0

Responsible Department LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number

Please contact the regional company representation in your country.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquid, Category 2, H225

Eye irritation, Category 2, H319

Specific target organ toxicity - single exposure, Category 3, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.
2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**

*Hazard pictograms*

![Pictograms](image)

*Signal word*

Danger

*Hazard statements*

H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

*Precautionary statements*

**Prevention**

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.

**Response**

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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.

**Storage**

P403 + P235 Store in a well-ventilated place. Keep cool.

*Reduced labelling (≤125 ml)*

*Hazard pictograms*

![Pictograms](image)

*Signal word*
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Catalogue No. 100272
Product name 2-Propanol standard for the analysis of tobacco

Danger

2.3 Other hazards
None known.

SECTION 3. Composition/information on ingredients
Chemical nature Mixture of organic compounds

3.1 Substance
Not applicable

3.2 Mixture

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)
CAS-No. Registration number Classification
2-Propanol (>= 50 % - <= 100 % )

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

67-63-0 01-2119457558-25-
XXXX Flammable liquid, Category 2, H225
Eye irritation, Category 2, H319
Specific target organ toxicity - single exposure, Category 3, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4. First aid measures
4.1 Description of first aid measures
After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed Caution Aspiration hazard Keep respiratory tract clear. Call a physician immediately. In case of spontaneous vomiting: Risk of aspiration. Pulmonary failure possible.

Call in physician.
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
   Headache, narcosis, Unconsciousness, Dizziness, respiratory paralysis, Coma
   irritant effects, somnolence, Drowsiness

4.3 Indication of any immediate medical attention and special treatment needed
   Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

SECTION 5. Firefighting measures
5.1 Extinguishing media
   Unsuitable extinguishing media
   For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
   Pay attention to flashback.
   Vapours are heavier than air and may spread along floors.
   Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters
   Special protective equipment for firefighters
   In the event of fire, wear self-contained breathing apparatus.

   Further information
   Remove container from danger zone and cool with water. Prevent fire extinguishing water from
   contaminating surface water or the ground water system.

SECTION 6. Accidental release measures
6.1 Personal precautions, protective equipment and emergency procedures
   Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance
   contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the
   danger area, observe emergency procedures, consult an expert.

   Advice for emergency responders:
   Protective equipment see section 8.
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6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
Indications about waste treatment see section 13.

SECTION 7. Handling and storage
7.1 Precautions for safe handling

Advice on safe handling
Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Recommended storage temperature see product label.

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

**Derived No Effect Level (DNEL)**

2-Propanol (67-63-0)

<table>
<thead>
<tr>
<th></th>
<th>Systemic effects</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker DNEL, longterm</td>
<td></td>
<td>inhalation</td>
<td>500 mg/m³</td>
</tr>
<tr>
<td>Worker DNEL, longterm</td>
<td></td>
<td>dermal</td>
<td>888 mg/kg Body weight</td>
</tr>
<tr>
<td>Consumer DNEL, longterm</td>
<td></td>
<td>inhalation</td>
<td>89 mg/m³</td>
</tr>
<tr>
<td>Consumer DNEL, longterm</td>
<td></td>
<td>dermal</td>
<td>319 mg/kg Body weight</td>
</tr>
<tr>
<td>Consumer DNEL, longterm</td>
<td></td>
<td>oral</td>
<td>26 mg/kg Body weight</td>
</tr>
</tbody>
</table>

**Predicted No Effect Concentration (PNEC)**

2-Propanol (67-63-0)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PNEC Fresh water</td>
<td>140.9 mg/l</td>
<td></td>
</tr>
<tr>
<td>PNEC Fresh water sediment</td>
<td>552 mg/kg</td>
<td></td>
</tr>
<tr>
<td>PNEC Marine water</td>
<td>140.9 mg/l</td>
<td></td>
</tr>
<tr>
<td>PNEC Marine sediment</td>
<td>552 mg/kg</td>
<td></td>
</tr>
<tr>
<td>PNEC Soil</td>
<td>28 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.
Individual protection measures
Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection
Safety glasses

Hand protection
full contact:
  Glove material: Nitrile rubber
  Glove thickness: 0,40 mm
  Break through time: 480 min

splash contact:
  Glove material: polychloroprene
  Glove thickness: 0,65 mm
  Break through time: 120 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 730 Camatril®-Velours (full contact), KCL 720 Camapren® (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet<sup>[1]</sup> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment
Flame retardant antistatic protective clothing.

Respiratory protection
required when vapours/aerosols are generated.
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

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.
Environmental exposure controls
Do not let product enter drains.
Risk of explosion.

SECTION 9. Physical and chemical properties
9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>colourless</td>
</tr>
<tr>
<td>Odour</td>
<td>alcohol-like</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No information available.</td>
</tr>
<tr>
<td>pH</td>
<td>No information available.</td>
</tr>
<tr>
<td>Melting point</td>
<td>-89 °C</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>82 °C</td>
</tr>
<tr>
<td></td>
<td>at 1.013 hPa</td>
</tr>
<tr>
<td>Flash point</td>
<td>12 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available.</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No information available.</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No information available.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

The Safety Data Sheets for catalogue items are available at www.merckgroup.com
SECTION 10. Stability and reactivity

10.1 Reactivity

Vapours may form explosive mixture with air.

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

9.2 Other data

Ignition temperature 425 °C
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Product name 2-Propanol standard for the analysis of tobacco

Risk of ignition or formation of inflammable gases or vapours with:
Alkali metals, Alkaline earth metals, Aluminium
Exothermic reaction with:
Oxidizing agents, Aldehydes, Amines, fuming sulfuric acid, Iron
Risk of explosion with:
chlorates, Phosgene, organic nitro compounds, hydrogen peroxide, nitrogen oxides

10.4 Conditions to avoid
Warming.

10.5 Incompatible materials
various plastics, rubber, oils

10.6 Hazardous decomposition products
no information available

SECTION 11. Toxicological information
11.1 Information on toxicological effects
Mixture

Acute oral toxicity
This information is not available.

Acute inhalation toxicity

Symptoms: Irritation symptoms in the respiratory tract.

Acute dermal toxicity
This information is not available.

Skin irritation

Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Eye irritation

Mixture causes serious eye irritation.
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Product name 2-Propanol standard for the analysis of tobacco

Sensitisation
This information is not available.

Germ cell mutagenicity
This information is not available.

Carcinogenicity
This information is not available.

Reproductive toxicity
This information is not available.

Teratogenicity
This information is not available.

Specific target organ toxicity - single exposure
This information is not available.

Specific target organ toxicity - repeated exposure
This information is not available.

Aspiration hazard
This information is not available.

11.2 Further information
After absorption:
Headache, Dizziness, inebriation, Unconsciousness, narcosis

After uptake of large quantities:
respiratory paralysis, Coma

Further data:
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

Components

2-Propanol

Acute oral toxicity
LD50 Rat: 5.045 mg/kg
(RTECS)
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according to Regulation (EC) No. 1907/2006

Catalogue No. 100272
Product name 2-Propanol standard for the analysis of tobacco

Acute inhalation toxicity
LC50 Rat: 37.5 mg/l; 4 h; vapour
OECD Test Guideline 403

Acute dermal toxicity
LD50 Rabbit: 12,800 mg/kg
(RTECS)

Skin irritation
Rabbit
Result: No skin irritation
OECD Test Guideline 404

Eye irritation
Rabbit
Result: Eye irritation
OECD Test Guideline 405

Sensitisation
Buehler Test Guinea pig
Result: negative
Method: OECD Test Guideline 406

Germ cell mutagenicity
Genotoxicity in vivo
In vivo micronucleus test
Mouse
male and female
Intraperitoneal injection
Result: negative
Method: OECD Test Guideline 474

Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test
Result: negative
Method: OECD Test Guideline 476
Carcinogenicity
Method: OECD Test Guideline 451

Did not show carcinogenic effects in animal experiments.

Reproductive toxicity
No impairment of reproductive performance in animal experiments. (IUCLID)

Teratogenicity
Did not show teratogenic effects in animal experiments. (IUCLID)

SECTION 12. Ecological information

Mixture

12.1 Toxicity
No information available.

12.2 Persistence and degradability
No information available.

12.3 Bioaccumulative potential
Partition coefficient: n-octanol/water
log Pow: 0.05

(2-Propanol)

12.4 Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment
Substance(s) in the mixture do(es) not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII, or a PBT/vPvB assessment was not conducted.

12.6 Other adverse effects
Additional ecological information
When discharged properly, no impairments in the function of adapted biological wastewater treatment plants are to be expected.

Components
2-Propanol
Toxicity to fish
flow-through test LC50 Pimephales promelas (fathead minnow): 9.640 mg/l; 96 h
US-EPA

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 13.299 mg/l; 48 h
(IUCLID)

Toxicity to algae
IC50 Desmodesmus subspicatus (green algae): > 1.000 mg/l; 72 h
(IUCLID)

Toxicity to bacteria
EC5 Pseudomonas putida: 1.050 mg/l; 16 h
(Lit.)

Biodegradability
95 %; 21 d; aerobic
OECD Test Guideline 301E
Readily biodegradable

Theoretical oxygen demand (ThOD)
2.400 mg/g
(Lit.)

Ratio BOD/ThBOD
BOD5  49 %
(IUCLID)

Ratio COD/ThBOD
96 %
(Lit.)

Partition coefficient: n-octanol/water
log Pow: 0.05
OECD Test Guideline 107
Bioaccumulation is not expected.

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.
SECTION 13. Disposal considerations

Waste treatment methods

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number UN 1219
14.2 Proper shipping name ISOPROPAHOL
14.3 Class 3
14.4 Packing group II
14.5 Environmentally hazardous --
14.6 Special precautions for user yes

Tunnel restriction code D/E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number UN 1219
14.2 Proper shipping name ISOPROPAHOL
14.3 Class 3
14.4 Packing group II
14.5 Environmentally hazardous --
14.6 Special precautions for user no

Sea transport (IMDG)
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Catalogue No. 100272
Product name 2-Propanol standard for the analysis of tobacco

14.1 UN number UN 1219
14.2 Proper shipping name ISOPROPANOL
14.3 Class 3
14.4 Packing group II
14.5 Environmentally hazardous --
14.6 Special precautions for user yes
EmS F-E S-D

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not relevant

SECTION 15. Regulatory information
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations
Major Accident Hazard SEVESO III
Legislation FLAMMABLE LIQUIDS
P5c
Quantity 1: 5,000 t
Quantity 2: 50,000 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work.

Regulation (EC) No 1005/2009 on substances that not regulated
deplete the ozone layer

Regulation (EC) No 850/2004 of the European not regulated
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Substances of very high concern (SVHC) 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).

National legislation
Storage class 3

15.2 Chemical safety assessment
For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Training advice
Provide adequate information, instruction and training for operators.

Labelling
Hazard pictograms

Signal word Danger

Hazard statements
H225 Highly flammable liquid and vapour.
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Precautionary statements

Prevention
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P240 Ground/bond container and receiving equipment.

Response
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation

This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.