

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

Revision date: 12.01.2025

Version: 7.3

Print date: 12.01.2025

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

1.1 Product identifier

Trade name/designation:	tert-Butyl methyl ether HiPerSolv CHROMANORM® for HPLC
Product No.:	22105
CAS No.:	1634-04-4
Index No.:	603-181-00-X
EU REACH No.:	01-2119452786-27-XXXX
Other means of identification:	2-Methoxy-2-methylpropane, MTBE

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

Relevant identified uses:	General chemical reagent
Uses advised against:	The product, as such or as a component of a mixture, is not intended to be used by consumers (as defined by the REACH Regulation).

1.3 Details of the supplier of the safety data sheet

Ireland

VWR International Ltd.

Street	Orion Business Campus, Northwest Business Park
Postal code/City	Ballycoolin, Dublin 15, Republic of Ireland
Telephone	+353 1 8822222
Telefax	+353 1 8822333
E-mail (competent person)	SDS@avantorsciences.com

1.4 Emergency phone number

Telephone	+44 (0) 1270 502894 (CareChem24)
-----------	----------------------------------

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Hazard classes and hazard categories	Hazard statements
Flammable liquid, category 2	H225
Skin irritation, category 2	H315

2.2 Label elements

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

Hazard pictograms



Signal word: Danger

Hazard statements	
H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.

Precautionary statements	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243	Take precautionary measures against static discharge.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P403+P235	Store in a well-ventilated place. Keep cool.

2.3 Other hazards

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

This product does not contain a substance that has endocrine disrupting properties.

SECTION 3: Composition / information on ingredients

3.1 Substances

Substance name:	tert-Butyl methyl ether
Molecular formula:	(CH ₃) ₃ COCH ₃
Molecular weight:	88.15 g/mol
CAS No.:	1634-04-4

EU REACH registration No.:	01-2119452786-27-XXXX
EC No.:	216-653-1
ATE, SCL and/or M-factor:	none

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

When in doubt or if symptoms are observed, get medical advice. Change contaminated, saturated clothing. Wash contaminated clothing before reuse. Do not leave affected person unattended.

After inhalation

Remove casualty to fresh air and keep warm and at rest. Obtain medical attention if symptoms appear.

In case of skin contact

Gently wash with plenty of soap and water. In case of skin reactions, consult a physician.

After eye contact:

Rinse immediately carefully and thoroughly with eye-bath or water. Obtain medical attention if symptoms appear.

In case of ingestion

Rinse mouth thoroughly with water. Call a doctor if you feel unwell.

Self-protection of the first aider

First aider: Pay attention to self-protection!

4.2 Most important symptoms and effects, both acute and delayed

Irritation. Vomiting. Nausea. Dizziness. Drowsiness.

4.3 Indication of any immediate medical attention and special treatment needed

No special information on medical attention and special treatment 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

Full water jet.

5.2 Special hazards arising from the substance or mixture

Move undamaged containers from immediate danger zone if it can be done safely.
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
In case of fire may be liberated:

Carbon monoxide
Carbon dioxide (CO₂).

5.3 Advice for firefighters

Combustible

Vapours can form explosive mixtures with air.

The vapour is heavier than air and may travel along the ground; distant ignition possible.

The vapour of the product is heavier than air and may accumulate below ground level, in pits, channels and basements in higher concentration.

Do not inhale explosion and combustion gases.

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

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

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 Reference to other sections

Clear spills immediately.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

All work processes must always be designed so that the following is as low as possible:

Inhalation.

Skin contact.

Eye contact.

Keep away from sources of ignition - No smoking.

Usual measures for fire prevention.

Take precautionary measures against static discharges.

Protect from moisture.

Wash hands before breaks and after work. Avoid contact with eyes and skin. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

7.2 Conditions for safe storage, including any incompatibilities

Recommended storage temperature: 15°C – 25°C or 30°C depending on climatic conditions.

Storage class: 3

Keep container tightly closed and in a well-ventilated place. Keep/Store away from combustible materials.

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

Ingredient (Designation)	Source	Country	parameter	Limit value	Remark
tert-Butyl methyl ether	Chemical Agents Code of Practice 2020	IE	LTV	183,5 mg/m ³ - 50 ppm	IOELV
tert-Butyl methyl ether	Chemical Agents Code of Practice 2020	IE	STV	367 mg/m ³ - 100 ppm	IOELV

Recommended monitoring procedures:

European Standard EN 14042 (Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents)

European Standard EN 482 (Workplace exposure. Procedures for the determination of the concentration of chemical agents - Basic performance requirements)

8.2 Exposure controls

8.2.1 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.

8.2.2 Personal protection equipment

Wear suitable protective clothing. When handling with chemical substances, protective clothing with CE-labels including the four control digits must be worn.

Eye/face protection

Eye glasses with side protection DIN-/EN-Norms EN 166

Recommendation: VWR 111-0432

Skin protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. Recommended glove articles DIN-/EN-Norms EN ISO 374 In the case of wanting to use the gloves again, clean them before taking off and air them well.

By short-term hand contact

Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material:	0,12 mm
Breakthrough time:	14 min
Recommended glove articles:	VWR 112-0998

By long-term hand contact

Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material:	0,38 mm
Breakthrough time:	> 480 min
Recommended glove articles:	VWR 112-3717 / 112-1381

Respiratory protection

Respiratory protection necessary at: aerosol or mist formation

Suitable respiratory protection apparatus:	Full-/half-/quarter-face masks (EN 136/140)
Recommendation:	VWR 111-0206
Suitable material:	ABEK2P3
Recommendation:	VWR 111-0059

Additional information

Wash hands before breaks and after work. Avoid contact with eyes and skin. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

8.2.3 *Environmental exposure controls*
no data available

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical state:	liquid
Colour:	colourless
Odour:	no data available

Safety relevant basic data

pH:	no data available
Melting point/freezing point:	-108.6 °C
Initial boiling point and boiling range:	55.2 °C (1013 hPa)
Flash point:	-28 °C
Flammability:	Highly flammable liquid and vapour.
Lower and upper explosion limit	
Lower explosion limit:	1.5 % (v/v)
Upper explosion limit:	8.5 % (v/v)
Vapour pressure:	275 mmHg (20 °C)
Relative vapour density:	3 (20 °C)
Density and/or relative density	
Density:	0.7405 g/cm ³ (20 °C)
Solubility(ies)	
Water solubility:	~42 g/l (20 °C)
Partition coefficient: n-octanol/water:	0.94 (20 °C)
Auto-ignition temperature:	460 °C (DIN 51794)
Decomposition temperature:	Not applicable
Viscosity	
Kinematic viscosity:	no data available
Dynamic viscosity:	0.36 mPa*s (20 °C)
Particle characteristics:	does not apply to liquids

9.2 Other information

Evaporation rate:	no data available
Explosive properties:	no data available
Oxidising properties:	Not applicable
Bulk density:	no data available
Refraction index:	1.3765 (589 nm; 17.5 °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

- Vapour can form explosive mixtures with air.
- Risk of ignition.
- In case of warming:

Risk of ignition.

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Violent reaction with:

Oxidising agent.

Reducing agent.

Acid

Alkali metals

Peroxides

10.4 Conditions to avoid

This material is combustible and can be ignited by heat, sparks, flames, or other sources of ignition (e.g. static electricity, pilot lights, or mechanical/electrical equipment).

Avoid high temperatures or direct sunlight.

10.5 Incompatible materials:

Rubber articles

Plastic articles

10.6 Hazardous decomposition products

Decomposition products in case of fire: see section 5.

SECTION 11: Toxicological information

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

Acute effects

Acute oral toxicity:

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

LD50: < 2000 mg/kg - Rat - (OECD 401)

Acute dermal toxicity:

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

LD50: < 2000 mg/kg - Rabbit - (OECD 402)

Acute inhalation toxicity:

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

LC50: 23576 ppm - Rat - (National Library of Medicine ChemID Plus (NLM CIP))

Irritant and corrosive effects:*Primary irritation to the skin:*

Causes skin irritation.

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

11.2 Information on other hazards

This substance does not have endocrine disrupting properties with respect to humans.

SECTION 12: Ecological information

12.1 Toxicity

Fish toxicity:

LC50: 672 mg/l (96 h) - Geiger, D.L., D.J. Call, and L.T. Brooke 1988. Acute Toxicities of Organic Chemicals to Fathead Minnows (Pimephales promelas) Volume IV. Ctr.for Lake Superior Environ.Stud., Volume 4, Univ.of Wisconsin-Superior, Superior, WI :355

Daphnia toxicity:

no data available

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: 0.94 (20 °C)

12.4 Mobility in soil:

no data available

12.5 Results of PBT/vPvB assessment

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

12.6 Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to the environment.

12.7 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.

Waste code product: 070104

Appropriate disposal / Package

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

Additional information

European waste management legislation

Directive 2008/98/EC (Waste Framework Directive)

National waste management legislation

Act No. 10/1996 - Waste Management Act, 1996

Act No. 36/2001 - Waste Management (Amendment) Act, 2001

SECTION 14: Transport information

Land transport (ADR/RID)

14.1	UN number or ID number:	2398
14.2	UN proper shipping name:	METHYL tert-BUTYL ETHER
14.3	Transport hazard class(es):	3
	Classification code:	F1
	Hazard label(s):	3
14.4	Packing group:	II
14.5	Environmental hazards:	No
14.6	Special precautions for user:	
	Hazard identification number (Kemler No.):	33
	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 number or ID number:	2398
14.2	UN proper shipping name:	METHYL TERT-BUTYL ETHER
14.3	Transport hazard class(es):	3
	Classification code:	
	Hazard label(s):	3
14.4	Packing group:	II
14.5	Environmental hazards:	No
	Marine pollutant:	No
14.6	Special precautions for user:	
	Segregation group:	-
	EmS-No.	F-E S-D
14.7	Maritime transport in bulk according to IMO instruments	not relevant

Air transport (ICAO-TI / IATA-DGR)

14.1	UN number or ID number:	2398
14.2	UN proper shipping name:	METHYL TERT-BUTYL ETHER
14.3	Transport hazard class(es):	3
	Classification code:	
	Hazard label(s):	3
14.4	Packing group:	II
14.5	Special precautions for user:	

SECTION 15: Regulatory information

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

EU legislation

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (Text with EEA relevance)
- 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 (Text with EEA relevance)
- Commission Regulation (EU) 2020/878 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

National regulations

no data available

Water hazard class: slightly hazardous to water

15.2 Chemical Safety Assessment

For this substance a chemical safety assessment has not been carried out.

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

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

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.

Additional information

Indication of changes Section 11

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.