



Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (amended by Regulation (EU) No 453/2010)

Revision date: 30.07.2014

Version: 4.0

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

1.1 Product identifier

Trade name/designation:	Titration solvent ASTM D-5776 VOLUSOL
Product No.:	5449 (VWR International)
Substance name:	
CAS No.:	
INDEX No.:	
REACH registration No.:	Not yet communicated down the supply chain.
Other means of identification:	

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

Relevant identified uses:	General chemical reagent
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1.3 Details of the supplier of the safety data sheet

Supplier (manufacturer/importer/only representative/downstream user/distributor)

United Kingdom

VWR International Ltd.

Street	Hunter Boulevard, Magna Park
Postal code/city	Lutterworth, LE17 4XN
Telephone	0800 22 33 44
Telefax	01455 55 85 86
E-mail (competent person)	vwr@sds@eu.vwr.com

Emergency telephone

Telephone	+44 (0) 1270 502894
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Ireland

VWR International Ltd.

Street	Orion Business Campus, Northwest Business Park
Postal code/city	Ballycoolin, Dublin 15
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Telefax	+353 1 8822333
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Emergency telephone

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Ireland

VWR International (Northern Ireland) Ltd.

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Netherlands

VWR International B.V.

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Switzerland

VWR International GmbH

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Telefax	+44 (0) 745 13 10
E-mail (competent person)	vwrstds@eu.vwr.com

Emergency telephone

Telephone	145
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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 3	H226
Reproductive toxicity, category 1B	H360D
Specific target organ toxicity (single exposure), category 1	H370
Acute toxicity, category 4, oral	H302
Acute toxicity, category 4, dermal	H312
Acute toxicity, category 4, inhalation	H332
Skin corrosion, category 1A	H314

2.2 Label elements

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

Hazard pictograms



Signal word: Danger

Hazard statements	
H226	Flammable liquid and vapour.
H360D	May damage the unborn child.
H370	Causes damage to organs.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H314	Causes severe skin burns and eye damage.

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.
P281	Use personal protective equipment as required.
P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P302+P352	IF ON SKIN: Wash with plenty of water/...
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P309+P310	IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

Other hazards

SVHC No



SECTION 3: Composition / information on ingredients

3.1 Substances

not relevant (Product identifier)

3.2 Mixtures

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

Substance name	Concentration	Product identifier	Hazard classes and hazard categories
Acetic acid	65-75%	CAS No.: 64-19-7 EC No.: 200-580-7 REACH No.: 01-2119475328-30	Flammable liquid, category 3 - H226 Skin corrosion, category 1A - H314
N-Methyl-2-pyrrolidone (NMP)	10-15%	CAS No.: 872-50-4 EC No.: 212-828-1 REACH No.: Not yet communicated down the supply chain.	Reproductive toxicity, category 1B - H360D Eye irritation, category 2 - H319 Specific target organ toxicity (single exposure), category 3, vascular - H335 Skin irritation, category 2 - H315
Methanol	10-15%	CAS No.: 67-56-1 EC No.: 200-659-6 REACH No.: 01-2119433307-44	Flammable liquid, category 2 - H225 Acute toxicity, category 3, oral - H301 Acute toxicity, category 3, dermal - H311 Acute toxicity, category 3, inhalation - H331 Specific target organ toxicity (single exposure), category 1 - H370
Sulphuric acid	1-5%	CAS No.: 7664-93-9 EC No.: 231-639-5 REACH No.: 01-2119458838-20	Skin corrosion, category 1A - H314 Hazardous to the aquatic environment, acute, category 1 - H400

This mixture contains the following substances of very high concern (SVHC) which are included in the Candidate List according to Article 59 of REACH:

- N-Methyl-2-pyrrolidone (NMP) (ED/31/2011)

SECTION 4: First aid measures

4.1 General information

When in doubt or if symptoms are observed, get medical advice. If unconscious place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person or a person with cramps. Change contaminated, saturated clothing. Do not leave affected person unattended.

After inhalation

Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration. In case of respiratory tract irritation, consult a physician.

In case of skin contact

After contact with skin, wash immediately with plenty of water and soap. Remove contaminated, saturated clothing immediately. In case of skin reactions, consult a physician.

After eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye. Remove contact lenses, if present and easy to do. Continue rinsing.

In case of ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Do NOT induce vomiting. Give nothing to eat or drink.



4.2 Most important symptoms and effects, both acute and delayed

no data available

4.3 Indication of any immediate medical attention and special treatment needed

no data available

4.4 Self-protection of the first aider

First aider: Pay attention to self-protection!

4.5 Information to physician

no data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Extinguishing media which must not be used for safety reasons

no data available

5.2 Special hazards arising from the substance or mixture

In case of fire may be liberated: Pyrolysis products, toxic

5.3 Advice for firefighters

DO NOT fight fire when fire reaches explosives. In case of fire: Wear self-contained breathing apparatus.

5.4 Additional information

Do not allow run-off from fire-fighting to enter drains or water courses. Do not inhale explosion and combustion gases. Use caution when applying carbon dioxide in confined spaces. Carbon dioxide can displace oxygen. Use water spray jet to protect personnel and to cool endangered containers.

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. Use personal protection equipment. Stop leak if safe to do so. Eliminate all ignition sources if safe to do so.

6.2 Environmental precautions

Do not allow to enter into surface water or drains. Discharge into the environment must be avoided. Ensure waste is collected and contained.

6.3 Methods and material for containment and cleaning up

Spilled product must never be returned to the original container for recycling. Clean contaminated objects and areas thoroughly observing environmental regulations. Collect in closed and suitable containers for disposal.

6.4 Additional information

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 Use extractor hood (laboratory). If handled uncovered, arrangements with local exhaust ventilation have to be used. If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means.



7.2 Conditions for safe storage, including any incompatibilities

storage temperature:

Storage class:

Keep in a cool, well-ventilated place. Keep/Store only in original container.

7.3 Specific end use(s)

no data available



SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredient (Designation)	Regulatory information	Country	Limit value type (country of origin)	Limit value	Remark
N-Methyl-2-pyrrolidone (NMP)	Gestis	CH	LTV	80 mg/m ³ - 20 ppm	
N-Methyl-2-pyrrolidone (NMP)	Gestis	CH	STV	160 mg/m ³ - 40 ppm	
N-Methyl-2-pyrrolidone (NMP)	2009/161/EC	EU	LTV	40 mg/m ³ - 10 ppm	
N-Methyl-2-pyrrolidone (NMP)	2009/161/EC	EU	STV	80 mg/m ³ - 20 ppm	
N-Methyl-2-pyrrolidone (NMP)	Gestis	UK	STV	309 mg/m ³ - 75 ppm	
N-Methyl-2-pyrrolidone (NMP)	Gestis	UK	LTV	103 mg/m ³ - 25 ppm	
Methanol	Gestis	CH	STV	1040 mg/m ³ - 800 ppm	
Methanol	Gestis	CH	LTV	260 mg/m ³ - 200 ppm	
Methanol	2006/15/EC	EU	LTV	260 mg/m ³ - 200 ppm	
Methanol	Gestis	NL	LTV	133 mg/m ³	
Methanol	Gestis	UK	LTV	266 mg/m ³ - 200 ppm	
Methanol	Gestis	UK	STV	333 mg/m ³ - 250 ppm	
Sulphuric acid	Gestis	CH	LTV	0,1 mg/m ³	inhalable aerosol
Sulphuric acid	Gestis	CH	STV	0,1 mg/m ³	inhalable aerosol
Sulphuric acid	2009/161/EC	EU	LTV	0,05 mg/m ³	
Sulphuric acid	Gestis	UK	LTV	(1) mg/m ³	The UK Advisory Committee on Toxic Substances has expressed concern that, for the OELs shown in parentheses, health may not be adequately protected because of doubts that the limit was not soundly-based. These OELs were included in the published UK 2002 I



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. For the protection against direct skin contact, body protective clothing is essential (in addition to the usual working clothes).

Eye/face protection

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

Recommendation: VWR 111-0432

Skin protection

no data available

By short-term hand contact

Suitable material: no data available

Thickness of the glove material: no data available

Breakthrough time (maximum wearing time): no data available

Recommended glove articles: no data available

By long-term hand contact

Suitable material: no data available

Thickness of the glove material: no data available

Breakthrough time (maximum wearing time): no data available

Recommended glove articles: no data available

Respiratory protection

no data available

Suitable respiratory protection apparatus:

Recommendation: no data available

Suitable material: no data available

Recommendation: no data available

Additional information

Wash hands before breaks and after work. Avoid contact with skin and eyes. 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

(a) Appearance	
Physical state:	liquid
Colour:	no data available
(b) Odour:	no data available
(c) Odour threshold:	no data available

Safety relevant basic data

(d) pH:	no data available
(e) Melting point/freezing point:	no data available
(f) Initial boiling point and boiling range:	no data available
(g) Flash point:	no data available
(h) Evaporation rate:	no data available
(i) Flammability (solid, gas):	Flammable liquid and vapour.
(j) Upper/lower flammability or explosive limits	
Lower explosion limit:	no data available
Upper explosion limit:	no data available
(k) Vapour pressure:	no data available
(l) Vapour density:	no data available
(m) Relative density:	no data available
(n) Solubility(ies)	
at 20 °C:	no data available
Soluble (g/L) in:	no data available
(o) Partition coefficient: n-octanol/water:	no data available
(p) Auto-ignition temperature:	no data available
(q) Decomposition temperature:	no data available
(r) Viscosity	
Kinematic viscosity:	no data available
Dynamic viscosity:	no data available
(s) Explosive properties:	not applicable
(t) Oxidising properties:	not applicable

9.2 Other information

Bulk density:	no data available
Refraction index:	no data available
Dissociation constant:	no data available
Surface tension:	no data available
Henry constant:	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

no data available

10.7 Additional information

no data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute effects

Acute oral toxicity:

no data available

Acute dermal toxicity:

no data available

Acute inhalation toxicity:

no data available

Irritant and corrosive effects

Primary irritation to the skin:

Causes severe skin burns and eye damage.

Irritation to eyes:

Causes serious eye damage.

Irritation to respiratory tract:

not applicable

Respiratory or skin sensitisation

In case of skin contact: not sensitising

After inhalation: not sensitising

STOT-single exposure

Causes damage to organs.

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

May damage the unborn child.

Aspiration hazard

not applicable

Other adverse effects

no data available

Additional information

no data available

SECTION 12: Ecological information

12.1 Ecotoxicity

Acute (short-term) fish toxicity:

no data available

Chronic (long-term) fish toxicity:

no data available

Acute (short-term) daphnia toxicity:

no data available

Chronic (long-term) daphnia toxicity:

no data available

Acute (short-term) algae toxicity:

no data available

Chronic (long-term) algae toxicity:

no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water: no data available

12.4 Mobility in soil:

no data available

12.5 Results of PBT/vPvB assessment

no data available

12.6 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: no data available

Appropriate disposal / Package

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

Additional information

no data available

SECTION 14: Transport information

Land transport (ADR/RID)

14.1 UN-No.:	2924
14.2 Proper Shipping Name:	FLAMMABLE LIQUID, CORROSIVE, N.O.S.
14.3 Class(es):	3
Classification code:	FC
Hazard label(s):	3+8
14.4 Packing group:	I
14.5 Environmental hazards:	No
14.6 Special precautions for user:	
Hazard identification number (Kemler No.):	338
tunnel restriction code:	C/E
	(Passage forbidden through tunnels of category C and D when carried in tanks. Passage forbidden through tunnels of category E.)

Sea transport (IMDG)

14.1 UN-No.:	2924
14.2 Proper Shipping Name:	FLAMMABLE LIQUID, CORROSIVE, N.O.S.
14.3 Class(es):	3
Classification code:	
Hazard label(s):	3+8
14.4 Packing group:	I
14.5 Environmental hazards:	No
MARINE POLLUTANT:	No
14.6 Special precautions for user:	
Segregation group:	-
EmS-No.	F-E S-C
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	
not relevant	

Air transport (ICAO-TI / IATA-DGR)

14.1 UN-No.:	2924
14.2 Proper Shipping Name:	FLAMMABLE LIQUID, CORROSIVE, N.O.S., Acid
14.3 Class(es):	3
Classification code:	FC
Hazard label(s):	3+8
14.4 Packing group:	I
14.5 Special precautions for user	not relevant

SECTION 15: Regulatory information

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

General rules

Water hazard class (WGK):

EU: 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)

EU: 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)

EU: Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Text with EEA relevance)

15.2 Chemical Safety Assessment

no data available



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)
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
LTV - Long Term Value
NIOSH - National Institute for Occupational Safety and Health
OSHA - Occupational Safety & Health Administration
PBT - Persistent, Bioaccumulative and Toxic
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

R-phrases

no data available

S-phrases

no data available

Additional information

Indication of changes: general update

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.