

Safety Data Sheet

acc. to OSHA HCS

Revision date 08/23/2024

1 Identification

- **Product identifier**
- **Product Name:** USP 467 Class 2 Residual Solvents Standard B (1X1 mL)
- **Part number:** USPM-467L-1
- **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Agilent Technologies, Inc.
5301 Stevens Creek Blvd.
Santa Clara, CA 95051 USA
- **Information department:**
Telephone: 800-227-9770
e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Toxic to Reproduction 2 H361 Suspected of damaging fertility or the unborn child.

Flammable Liquids 4 H227 Combustible liquid.

- **Label elements**

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS08

- **Signal word** Warning

- **Hazard-determining components of labeling:**

n-hexane

- **Hazard statements**

H227 Combustible liquid.

H361 Suspected of damaging fertility or the unborn child.

- **Precautionary statements**

P210 Keep away from flames and hot surfaces. – No smoking.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

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

P370+P378 In case of fire: Use CO2, powder or water spray to extinguish.

P405 Store locked up.

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

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**

HEALTH	0	Health = 0
FIRE	2	Fire = 2
REACTIVITY	0	Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

67-68-5	dimethyl sulfoxide	99.5778%
110-54-3	n-hexane	0.1317%

4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

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6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· PAC-1:

67-68-5	dimethyl sulfoxide	150 ppm
110-54-3	n-hexane	260 ppm
110-86-1	pyridine	3 ppm
110-71-4	1,2-dimethoxyethane	13 ppm
119-64-2	1,2,3,4-tetrahydronaphthalene	1.6 ppm
79-01-6	trichloroethylene	130 ppm
67-66-3	trichloromethane	2 ppm
75-52-5	nitromethane	60 ppm
591-78-6	hexan-2-one	10 ppm

· PAC-2:

67-68-5	dimethyl sulfoxide	290 ppm
110-54-3	n-hexane	2900* ppm
110-86-1	pyridine	19 ppm
110-71-4	1,2-dimethoxyethane	140 ppm
119-64-2	1,2,3,4-tetrahydronaphthalene	17 ppm
79-01-6	trichloroethylene	450 ppm
67-66-3	trichloromethane	64 ppm
75-52-5	nitromethane	210 ppm
591-78-6	hexan-2-one	830 ppm

· PAC-3:

67-68-5	dimethyl sulfoxide	1,800 ppm
110-54-3	n-hexane	8600** ppm
110-86-1	pyridine	3600* ppm
110-71-4	1,2-dimethoxyethane	840 ppm
119-64-2	1,2,3,4-tetrahydronaphthalene	100 ppm
79-01-6	trichloroethylene	3,800 ppm
67-66-3	trichloromethane	3,200 ppm
75-52-5	nitromethane	1,000 ppm

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591-78-6 hexan-2-one

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5000* ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** Open and handle receptacle with care.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

67-68-5 dimethyl sulfoxide

WEEL Long-term value: 250 ppm

110-54-3 n-hexane

PEL	Long-term value: 1800 mg/m ³ , 500 ppm
REL	Long-term value: 180 mg/m ³ , 50 ppm
TLV	Long-term value: 50 ppm
	Skin; BEI

- **Ingredients with biological limit values:**

110-54-3 n-hexane

BEI	0.5 mg/L
	Medium: urine
	Time: end of shift
	Parameter: 2.5-Hexanedione without hydrolysis

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 - Keep away from foodstuffs, beverages and feed.
 - Wash hands before breaks and at the end of work.
 - Store protective clothing separately.
- **Breathing equipment:**

When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.

Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.

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· Protection of hands:

Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.

· Material of gloves

For normal use: nitrile rubber, 11-13 mil thickness

For direct contact with the chemical: butyl rubber, 12-15 mil thickness

· Penetration time of glove material

For normal use: nitrile rubber: 1 hour

For direct contact with the chemical: butyl rubber: >4 hours

· Eye protection: Goggles recommended during refilling.**9 Physical and chemical properties****· Information on basic physical and chemical properties****· General Information****· Appearance:**

Form: Fluid

Color: Colorless

· Odor: Odorless

· Odor threshold: Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range: 16-19 °C (60.8-66.2 °F)

Boiling point/Boiling range: 189 °C (372.2 °F)

· Flash point: 87 °C (188.6 °F)

· Flammability (solid, gaseous): Not applicable.

· Auto igniting: 270 °C (518 °F)

· Decomposition temperature: Not determined.

· Ignition temperature: Product is not selfigniting.

· Danger of explosion: Not determined.

· Explosion limits:

Lower: 1.8 Vol %

Upper: 63 Vol %

· Vapor pressure at 20 °C (68 °F): 0.41 hPa (0.3 mm Hg)

· Density at 20 °C (68 °F): 1.09938 g/cm³ (9.17433 lbs/gal)

· Relative density Not determined.

· Vapor density Not determined.

· Evaporation rate Not determined.

· Solubility in / Miscibility with

Water: Not miscible or difficult to mix.

· Partition coefficient (n-octanol/water): Not determined.

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· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	99.8 %
VOC content:	99.84 %
	1,097.6 g/l / 9.16 lb/gal
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

67-68-5 dimethyl sulfoxide

Oral	LD50	14,500 mg/kg (rat)
Dermal	LD50	>5,000 mg/kg (rabbit)
Inhalative	LC50/4 h	40,250 mg/L (rat)

110-54-3 n-hexane

Oral	LD50	5,000 mg/kg (rat)
Dermal	LD50	3,000 mg/kg (rabbit)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:

- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

110-86-1	pyridine	2B
79-01-6	trichloroethylene	1
67-66-3	trichloromethane	2B
75-52-5	nitromethane	2B

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· NTP (National Toxicology Program)		
79-01-6	trichloroethylene	K
67-66-3	trichloromethane	R
75-52-5	nitromethane	R
· OSHA-Ca (Occupational Safety & Health Administration)		
None of the ingredients is listed.		

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· Not Regulated, De minimis Quantities		-
· UN-Number		
· DOT, ADN, IMDG, IATA		not regulated
· UN proper shipping name		
· DOT, ADN, IMDG, IATA		not regulated
· Transport hazard class(es)		
· DOT, ADN, IMDG, IATA		
· Class		not regulated

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- | | |
|--|-----------------|
| · Packing group | |
| · DOT, IMDG, IATA | not regulated |
| · Environmental hazards: | Not applicable. |
| · Special precautions for user | Not applicable. |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · UN "Model Regulation": | not regulated |

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.

- **Sara**

- **Section 355 (extremely hazardous substances):**

67-66-3	trichloromethane
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- **Section 313 (Specific toxic chemical listings):**

110-54-3	n-hexane
110-86-1	pyridine
110-71-4	1,2-dimethoxyethane
79-01-6	trichloroethylene
67-66-3	trichloromethane
75-52-5	nitromethane

- **TSCA (Toxic Substances Control Act):**

All components have the value ACTIVE.

- **Hazardous Air Pollutants**

110-54-3	n-hexane
79-01-6	trichloroethylene
67-66-3	trichloromethane

- **Proposition 65**

- **Chemicals known to cause cancer:**

110-86-1	pyridine
79-01-6	trichloroethylene
67-66-3	trichloromethane
75-52-5	nitromethane

- **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for males:**

110-54-3	n-hexane
79-01-6	trichloroethylene
591-78-6	hexan-2-one

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Chemicals known to cause developmental toxicity:

79-01-6	trichloroethylene
67-66-3	trichloromethane
591-78-6	hexan-2-one

Carcinogenic categories
EPA (Environmental Protection Agency)

110-54-3	n-hexane	II
79-01-6	trichloroethylene	CaH
67-66-3	trichloromethane	B2, L, NL
591-78-6	hexan-2-one	II

TLV (Threshold Limit Value)

110-86-1	pyridine	A3
79-01-6	trichloroethylene	A2
67-66-3	trichloromethane	A3
75-52-5	nitromethane	A3

NIOSH-Ca (National Institute for Occupational Safety and Health)

79-01-6	trichloroethylene
67-66-3	trichloromethane

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

Department issuing SDS: Document Control / Regulatory

Contact: pdl-acg-regulatory-cq@agilent.com

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Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Flammable Liquids 4: Flammable liquids – Category 4

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Toxic to Reproduction 2: Reproductive toxicity – Category 2

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· *** Data compared to the previous version altered.**

US