

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/30/2019

Version Number 3

Reviewed on 03/30/2019

**1 Identification**

- **Product identifier**
- **Trade name:** USP 467 Class 2 Residual Solvents Standard C (1X1 mL)
- **Part number:** USPM-467M-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

Carc. 1B H350 May cause cancer.

Repr. 1B H360 May damage fertility or the unborn child.

Flam. Liq. 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** Danger
- **Hazard-determining components of labeling:**  
N,N-dimethylacetamide  
N,N-dimethylformamide  
N-methyl-2-pyrrolidone
- **Hazard statements**  
Combustible liquid.  
May cause cancer.  
May damage fertility or the unborn child.
- **Precautionary statements**  
Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Keep away from flames and hot surfaces. – No smoking.  
Wear protective gloves/protective clothing/eye protection/face protection.  
IF exposed or concerned: Get medical advice/attention.  
In case of fire: Use for extinction: CO2, powder or water spray.

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Store in a well-ventilated place. Keep cool.

Store locked up.

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

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


Health = 0

Fire = 2

Reactivity = 0

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


Health = \*0

Fire = 2

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	98.315%
127-19-5	N,N-dimethylacetamide	0.495%
68-12-2	N,N-dimethylformamide	0.3996%
872-50-4	N-methyl-2-pyrrolidone	0.241%

### 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:**

 CO<sub>2</sub>, 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.

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- **Advice for firefighters**
- **Protective equipment:** No special measures required.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **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 item 13.  
Ensure adequate ventilation.
- **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
127-19-5	N,N-dimethylacetamide	30 ppm
68-12-2	N,N-dimethylformamide	2 ppm
107-21-1	ethanediol	30 ppm
872-50-4	N-methyl-2-pyrrolidone	30 ppm
75-12-7	formamide	30 ppm
110-80-5	2-ethoxyethanol	15 ppm
126-33-0	sulpholane	4.1 mg/m <sup>3</sup>
109-86-4	2-methoxyethanol	0.3 ppm

- **PAC-2:**

67-68-5	dimethyl sulfoxide	290 ppm
127-19-5	N,N-dimethylacetamide	67 ppm
68-12-2	N,N-dimethylformamide	91 ppm
107-21-1	ethanediol	150 ppm
872-50-4	N-methyl-2-pyrrolidone	32 ppm
75-12-7	formamide	110 ppm
110-80-5	2-ethoxyethanol	1,000 ppm
126-33-0	sulpholane	45 mg/m <sup>3</sup>
109-86-4	2-methoxyethanol	14 ppm

- **PAC-3:**

67-68-5	dimethyl sulfoxide	1,800 ppm
127-19-5	N,N-dimethylacetamide	400 ppm
68-12-2	N,N-dimethylformamide	530 ppm
107-21-1	ethanediol	900 ppm
872-50-4	N-methyl-2-pyrrolidone	190 ppm
75-12-7	formamide	650 ppm

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110-80-5	2-ethoxyethanol	6000* ppm
126-33-0	sulpholane	400 mg/m <sup>3</sup>
109-86-4	2-methoxyethanol	2000* ppm

### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
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 item 7.
- **Control parameters**

#### · Components with limit values that require monitoring at the workplace:

##### **67-68-5 dimethyl sulfoxide**

WEEL Long-term value: 250 ppm

##### **127-19-5 N,N-dimethylacetamide**

 PEL Long-term value: 35 mg/m<sup>3</sup>, 10 ppm  
Skin

 REL Long-term value: 35 mg/m<sup>3</sup>, 10 ppm  
Skin

 TLV Long-term value: 36 mg/m<sup>3</sup>, 10 ppm  
Skin; BEI

##### **68-12-2 N,N-dimethylformamide**

 PEL Long-term value: 30 mg/m<sup>3</sup>, 10 ppm  
Skin

 REL Long-term value: 30 mg/m<sup>3</sup>, 10 ppm  
Skin

 TLV Long-term value: 15 mg/m<sup>3</sup>, 5 ppm  
Skin; BEI

##### **872-50-4 N-methyl-2-pyrrolidone**

 WEEL Long-term value: 10 ppm  
Skin

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**· Ingredients with biological limit values:**
**127-19-5 N,N-dimethylacetamide**

BEI	30 mg/g creatinine Medium: urine Time: end of shift at end of workweek Parameter: N-Methylacetamide
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**68-12-2 N,N-dimethylformamide**

BEI	15 mg/L Medium: urine Time: end of shift Parameter: N-Methylformamide
	40 mg/L Medium: urine Time: prior to last shift of workweek Parameter: N-Acetyl-S-(N-methylcarbamoyl) cysteine (semi-quantitative)

**872-50-4 N-methyl-2-pyrrolidone**

BEI	100 mg/L Medium: urine Time: end of shift Parameter: 5-Hydroxy-N-methyl-2-pyrrolidone
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· **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.

· **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

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**· Eye protection:**


Tightly sealed goggles

## 9 Physical and chemical properties

**· Information on basic physical and chemical properties**
**· General Information**
**· Appearance:**

<b>Form:</b>	Fluid
<b>Color:</b>	Colorless
<b>· Odor:</b>	Odorless
<b>· Odor threshold:</b>	Not determined.

**· pH-value:** Not determined.

**· Change in condition**

<b>Melting point/Melting range:</b>	16-19 °C (60.8-66.2 °F)
<b>Boiling point/Boiling range:</b>	189 °C (372.2 °F)

**· Flash point:** 87 °C (188.6 °F)

**· Flammability (solid, gaseous):** Not applicable.

**· Ignition temperature:** 270 °C (518 °F)

**· Decomposition temperature:** Not determined.

**· Auto igniting:** Product is not selfigniting.

**· Danger of explosion:** Not determined.

**· Explosion limits:**

<b>Lower:</b>	1.8 Vol %
<b>Upper:</b>	63 Vol %

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

**· Density at 20 °C (68 °F):** 1.09824 g/cm<sup>3</sup> (9.16481 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.

**· Viscosity:**

<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.

**· Solvent content:**
**Organic solvents:** 98.8 %

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<b>VOC content:</b>	98.75 % 1,084.5 g/l / 9.05 lb/gal
<b>Solids content:</b>	0.1 %
<b>Other information</b>	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:**

**ATE (Acute Toxicity Estimate)**

Inhalative	LC50/4 h	>2,119 mg/L (rat)
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**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)

**127-19-5 N,N-dimethylacetamide**

Oral	LD50	3,000 mg/kg (rat)
Dermal	LD50	2,240 mg/kg (rabbit)

**68-12-2 N,N-dimethylformamide**

Oral	LD50	2,800 mg/kg (rat)
Dermal	LD50	1,500 mg/kg (rabbit)
Inhalative	LC50/4 h	9,400 mg/L (mouse) 15 mg/L (rat)

**872-50-4 N-methyl-2-pyrrolidone**

Oral	LD50	3,914 mg/kg (rat)
Dermal	LD50	7,000 mg/kg (rat) 8,000 mg/kg (rabbit)
Inhalative	LC50/4 h	>5.1 mg/L (rat)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.

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- **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)**

68-12-2	N,N-dimethylformamide	2A
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- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **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 minimus Quantities** -

- **UN-Number**

- **DOT, ADN, IMDG, IATA** not regulated

- **UN proper shipping name**

- **DOT, ADN, IMDG, IATA** not regulated

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· <b>Transport hazard class(es)</b>	
· <b>DOT, ADN, IMDG, IATA</b>	
· <b>Class</b>	not regulated
· <b>Packing group</b>	
· <b>DOT, IMDG, IATA</b>	not regulated
· <b>Environmental hazards:</b>	Not applicable.
· <b>Special precautions for user</b>	Not applicable.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>UN "Model Regulation":</b>	not regulated

### 15 Regulatory information

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

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

None of the ingredients is listed.

**· Section 313 (Specific toxic chemical listings):**

68-12-2	N,N-dimethylformamide
107-21-1	ethanediol
872-50-4	N-methyl-2-pyrrolidone
110-80-5	2-ethoxyethanol
109-86-4	2-methoxyethanol

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

All ingredients are listed.

**· Proposition 65**
**· Chemicals known to cause cancer:**

68-12-2	N,N-dimethylformamide
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**· Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

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

127-19-5	N,N-dimethylacetamide
110-80-5	2-ethoxyethanol
109-86-4	2-methoxyethanol

**· Chemicals known to cause developmental toxicity:**

127-19-5	N,N-dimethylacetamide
107-21-1	ethanediol
872-50-4	N-methyl-2-pyrrolidone
110-80-5	2-ethoxyethanol
109-86-4	2-methoxyethanol

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- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

- **TLV (Threshold Limit Value established by ACGIH)**

127-19-5	N,N-dimethylacetamide	A4
68-12-2	N,N-dimethylformamide	A4
107-21-1	ethanediol	A4

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

None of the ingredients is listed.

- **National regulations:**

- **Information about limitation of use:**

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.  
 Exceptions can be made by the authorities in certain cases.

- **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:** regulatory@ultrasci.com

- **Date of preparation / last revision** 03/30/2019 / 2

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport 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

ACGIH: American Conference of Governmental Industrial Hygienists

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

Flam. Liq. 4: Flammable liquids – Category 4

Carc. 1B: Carcinogenicity – Category 1B

Repr. 1B: Reproductive toxicity – Category 1B

- **\* Data compared to the previous version altered.**