

Product code	Description
SPK-8141B	EPA Method 8141B Kit

Components:

SPM-824-1	Organophosphorous Pesticides Standard (1X1 mL)
SPM-834-1	Organophosphorous Pesticides Standard (1X1 mL)
SPM-844A-1	Organophosphorus Pesticides Standard (1X1 mL)
SPM-854-1	Organophosphorus Pesticides Standard (1X1 mL)
SPM-864-1	Industrial Chemicals Standard (1X1 mL)
SPM-874-1	Triazine Herbicides Standard (1X1 mL)
ISM-570-1	Surrogate Standard (1X1 mL)
PPS-350-1	1-Bromo-2-nitrobenzene Standard (1X1 mL)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/30/2019

Version Number 3

Reviewed on 05/29/2019

1 Identification

- **Product identifier**
- **Trade name:** Organophosphorous Pesticides Standard (1X1 mL)
- **Part number:** SPM-824-1
- **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**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS08 Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**

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

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

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

n-hexane

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acetone

· Hazard statements

Highly flammable liquid and vapor.

Causes skin irritation.

Causes serious eye irritation.

Suspected of damaging fertility or the unborn child.

May cause drowsiness or dizziness.

May cause damage to organs through prolonged or repeated exposure.

May be fatal if swallowed and enters airways.

· Precautionary statements

Obtain special instructions before use.

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

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

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

If swallowed: Immediately call a poison center/doctor.

Specific treatment (see on this label).

Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Call a poison center/doctor if you feel unwell.

Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO2, powder or water spray.

Store in a well-ventilated place. Keep container tightly closed.

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 = 2

Fire = 3

Reactivity = 0

· HMIS-ratings (scale 0 - 4)


Health = 2

Fire = 3

Reactivity = 0

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- **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:**

67-64-1	acetone	54.251%
110-54-3	n-hexane	45.197%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **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.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

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· 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:

67-64-1	acetone	200 ppm
110-54-3	n-hexane	260 ppm
115-90-2	fensulfothion (ISO)	0.18 mg/m ³
327-98-0	trichloronate (ISO)	0.91 mg/m ³
55-38-9	fenthion (ISO)	0.15 mg/m ³
298-00-0	parathion -methyl (ISO)	0.11 mg/m ³
86-50-0	azinphos-methyl (ISO)	0.6 mg/m ³
2921-88-2	chlorpyrifos (ISO)	0.6 mg/m ³
8065-48-3	demeton	0.18 mg/m ³
62-73-7	dichlorvos (ISO)	1.8 mg/m ³
298-04-4	disulfoton	0.18 mg/m ³
13194-48-4	ethoprophos (ISO)	0.14 mg/m ³
7786-34-7	mevinphos (ISO)	0.3 mg/m ³
56-72-4	coumaphos (ISO)	0.27 mg/m ³
298-02-2	phorate (ISO)	0.0036 mg/m ³

· PAC-2:

67-64-1	acetone	3200* ppm
110-54-3	n-hexane	2900* ppm
115-90-2	fensulfothion (ISO)	2 mg/m ³
327-98-0	trichloronate (ISO)	10 mg/m ³
55-38-9	fenthion (ISO)	5.9 mg/m ³
298-00-0	parathion -methyl (ISO)	1.2 mg/m ³
86-50-0	azinphos-methyl (ISO)	0.7 mg/m ³
2921-88-2	chlorpyrifos (ISO)	15 mg/m ³
8065-48-3	demeton	2 mg/m ³
62-73-7	dichlorvos (ISO)	20 mg/m ³
298-04-4	disulfoton	2 mg/m ³
13194-48-4	ethoprophos (ISO)	1.6 mg/m ³
7786-34-7	mevinphos (ISO)	4 mg/m ³
56-72-4	coumaphos (ISO)	3 mg/m ³
298-02-2	phorate (ISO)	0.040 mg/m ³

· PAC-3:

67-64-1	acetone	5700* ppm
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110-54-3	n-hexane	8600** ppm
115-90-2	fensulfothion (ISO)	3.1 mg/m ³
327-98-0	trichloronate (ISO)	30 mg/m ³
55-38-9	fenthion (ISO)	35 mg/m ³
298-00-0	parathion -methyl (ISO)	3.5 mg/m ³
86-50-0	azinphos-methyl (ISO)	20 mg/m ³
2921-88-2	chlorpyrifos (ISO)	44 mg/m ³
8065-48-3	demeton	20 mg/m ³
62-73-7	dichlorvos (ISO)	200 mg/m ³
298-04-4	disulfoton	8.8 mg/m ³
13194-48-4	ethoprophos (ISO)	9.3 mg/m ³
7786-34-7	mevinphos (ISO)	40 mg/m ³
56-72-4	coumaphos (ISO)	13 mg/m ³
298-02-2	phorate (ISO)	0.12 mg/m ³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **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:**

67-64-1 acetone

PEL Long-term value: 2400 mg/m³, 1000 ppm

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REL	Long-term value: 590 mg/m ³ , 250 ppm
TLV	Short-term value: 1187 mg/m ³ , 500 ppm
	Long-term value: 594 mg/m ³ , 250 ppm
	BEI

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: 176 mg/m ³ , 50 ppm
	Skin; BEI

Ingredients with biological limit values:
67-64-1 acetone

BEI	50 mg/L
	Medium: urine
	Time: end of shift
	Parameter: Acetone (nonspecific)

110-54-3 n-hexane

BEI	0.4 mg/L
	Medium: urine
	Time: end of shift at end of workweek
	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.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.

· **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:

Form:	Fluid
Color:	According to product specification
Odor:	Characteristic
Odor threshold:	Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	55.8-56.6 °C (132.4-133.9 °F)

· Flash point: -22 °C (-7.6 °F)

· Flammability (solid, gaseous): Not applicable.

· Ignition temperature: 240 °C (464 °F)

· Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

· Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· Explosion limits:

Lower:	1.2 Vol %
Upper:	13 Vol %

· Vapor pressure at 20 °C (68 °F): 175 hPa (131.3 mm Hg)

· Density: Not determined.

· 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:

Dynamic:	Not determined.
Kinematic:	Not determined.

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· Solvent content:	
Organic solvents:	99.6 %
VOC content:	45.39 %
	453.9 g/l / 3.79 lb/gal
· Solids content:	0.2 %
· 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:**

ATE (Acute Toxicity Estimate)

Oral	LD50	11,063 mg/kg (rat)
Dermal	LD50	6,638 mg/kg (rabbit)

67-64-1 acetone

Oral	LD50	5,800 mg/kg (rat)
Dermal	LD50	20,000 mg/kg (rabbit)

110-54-3 n-hexane

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

55-38-9 fenthion (ISO)

Oral	LD50	180 mg/kg (rat)
Dermal	LD50	330 mg/kg (rat)
Inhalative	LC50/4 h	800 mg/L (rat)

298-00-0 parathion -methyl (ISO)

Oral	LD50	6.01 mg/kg (rat)
Dermal	LD50	67 mg/kg (rat)
		300 mg/kg (rabbit)

300-76-5 naled (ISO)

Oral	LD50	92 mg/kg (rat)
Dermal	LD50	800 mg/kg (rat)

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		1,100 mg/kg (rabbit)
2921-88-2 chlorpyrifos (ISO)		
Oral	LD50	60 mg/kg (mouse) 135 mg/kg (rat)
Dermal	LD50	120 mg/kg (mouse) 202 mg/kg (rat)
Inhalative	LC50/4 h	>200 mg/L (rat)
62-73-7 dichlorvos (ISO)		
Oral	LD50	25 mg/kg (rat)
Dermal	LD50	107 mg/kg (rat) 107 mg/kg (rabbit)
Inhalative	LC50/4 h	15 mg/L (rat)
7786-34-7 mevinphos (ISO)		
Oral	LD50	3 mg/kg (rat)
Dermal	LD50	4 mg/kg (rat)
298-02-2 phorate (ISO)		
Oral	LD50	1.6 mg/kg (rat)
Dermal	LD50	2.5 mg/kg (rat)

· **Primary irritant effect:**

· **on the skin:** Irritant to skin and mucous membranes.

· **on the eye:** Irritating effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

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

298-00-0	parathion -methyl (ISO)	3
333-41-5	diazinon (ISO)	2A
62-73-7	dichlorvos (ISO)	2B
22248-79-9	tetrachlorvinphos	2B

· **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.

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- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
 Water hazard class 2 (Self-assessment): hazardous for water
 Do not allow product to reach ground water, water course or sewage system.
 Danger to drinking water if even small quantities leak into the ground.
- **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, IMDG, IATA | UN1993 |
| · UN proper shipping name | |
| · DOT | Flammable liquids, n.o.s. (Acetone, Hexanes) |
| · IMDG | FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES),
MARINE POLLUTANT |
| · IATA | FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES) |
| · Transport hazard class(es) | |
| · DOT | |
|  | |
| · Class | 3 Flammable liquids |
| · Label | 3 |
| · IMDG | |
|  | |
| · Class | 3 Flammable liquids |

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· Label	3
· IATA	
	
· Class	3 Flammable liquids
· Label	3
· Packing group	
· DOT, IMDG, IATA	II
· Environmental hazards:	Product contains environmentally hazardous substances: n-hexane
· Marine pollutant:	Symbol (fish and tree)
· Special precautions for user	Warning: Flammable liquids
· Danger code (Kemler):	33
· EMS Number:	F-E, <u>S</u> -E
· Stowage Category	B
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1993 FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES), 3, II, ENVIRONMENTALLY HAZARDOUS

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15 Regulatory information

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

· Section 355 (extremely hazardous substances):

115-90-2	fensulfothion (ISO)
327-98-0	trichloronate (ISO)
298-00-0	parathion -methyl (ISO)
86-50-0	azinthos-methyl (ISO)
8065-48-3	demeton
62-73-7	dichlorvos (ISO)
298-04-4	disulfoton

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13194-48-4	ethoprophos (ISO)
7786-34-7	mevinphos (ISO)
56-72-4	coumaphos (ISO)
298-02-2	phorate (ISO)

· Section 313 (Specific toxic chemical listings):

110-54-3	n-hexane
35400-43-2	sulprophos (bolstar)
55-38-9	fenthion (ISO)
298-00-0	parathion -methyl (ISO)
300-76-5	naled (ISO)
333-41-5	diazinon (ISO)
62-73-7	dichlorvos (ISO)
13194-48-4	ethoprophos (ISO)
150-50-5	merphos
7786-34-7	mevinphos (ISO)

· TSCA (Toxic Substances Control Act):

67-64-1	acetone	ACTIVE
110-54-3	n-hexane	ACTIVE
333-41-5	diazinon (ISO)	ACTIVE
62-73-7	dichlorvos (ISO)	ACTIVE
150-50-5	merphos	ACTIVE

· Hazardous Air Pollutants

110-54-3	n-hexane
62-73-7	dichlorvos (ISO)

· Proposition 65
· Chemicals known to cause cancer:

62-73-7	dichlorvos (ISO)
13194-48-4	ethoprophos (ISO)
22248-79-9	tetrachlorvinphos

· 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
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· Chemicals known to cause developmental toxicity:

2921-88-2	chlorpyrifos (ISO)
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· Carcinogenic categories
· EPA (Environmental Protection Agency)

67-64-1	acetone	I
110-54-3	n-hexane	II
62-73-7	dichlorvos (ISO)	B2

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· TLV (Threshold Limit Value established by ACGIH)		
67-64-1	acetone	A4
115-90-2	fensulfothion (ISO)	A4
35400-43-2	sulprophos (bolstar)	A4
55-38-9	fenthion (ISO)	A4
298-00-0	parathion -methyl (ISO)	A4
300-76-5	naled (ISO)	A4
299-84-3	fenchlorphos (ISO)	A4
86-50-0	azinphos-methyl (ISO)	A4
2921-88-2	chlorpyrifos (ISO)	A4
333-41-5	diazinon (ISO)	A4
62-73-7	dichlorvos (ISO)	A4
298-04-4	disulfoton	A4
7786-34-7	mevinphos (ISO)	A4
56-72-4	coumaphos (ISO)	A4
298-02-2	phorate (ISO)	A4

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

None of the ingredients is listed.

· **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** 05/30/2019 / 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. 2: Flammable liquids – Category 2

(Contd. on page 14)

Safety Data Sheet
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Reviewed on 05/29/2019

Trade name: Organophosphorous Pesticides Standard (1X1 mL)

(Contd. of page 13)

Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1
· *** Data compared to the previous version altered.**

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/30/2019

Version Number 3

Reviewed on 05/29/2019

1 Identification

- **Product identifier**
- **Trade name:** Organophosphorous Pesticides Standard (1X1 mL)
- **Part number:** SPM-834-1
- **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**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS08 Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**

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

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

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

n-hexane

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

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Version Number 3

Reviewed on 05/29/2019

Trade name: Organophosphorous Pesticides Standard (1X1 mL)

(Contd. of page 1)

acetone

· Hazard statements

Highly flammable liquid and vapor.

Causes skin irritation.

Causes serious eye irritation.

Suspected of damaging fertility or the unborn child.

May cause drowsiness or dizziness.

May cause damage to organs through prolonged or repeated exposure.

May be fatal if swallowed and enters airways.

· Precautionary statements

Obtain special instructions before use.

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

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

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

If swallowed: Immediately call a poison center/doctor.

Specific treatment (see on this label).

Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Call a poison center/doctor if you feel unwell.

Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO₂, powder or water spray.

Store in a well-ventilated place. Keep container tightly closed.

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 = 2

Fire = 3

Reactivity = 0

· HMIS-ratings (scale 0 - 4)

Health = 2

Fire = 3

Reactivity = 0

(Contd. on page 3)

US

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Trade name: Organophosphorous Pesticides Standard (1X1 mL)

(Contd. of page 2)

- **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:**

67-64-1	acetone	54.446%
110-54-3	n-hexane	45.36%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **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.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

(Contd. on page 4)

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Trade name: Organophosphorous Pesticides Standard (1X1 mL)

(Contd. of page 3)

· 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:

67-64-1	acetone	200 ppm
110-54-3	n-hexane	260 ppm
2104-64-5	O-ethyl O-4-nitrophenyl phenylphosphonothioate	0.45 mg/m ³
60-51-5	dimethoate (ISO)	2.7 mg/m ³
6923-22-4	monocrotophos (ISO)	0.15 mg/m ³
56-38-2	parathion (ISO)	0.15 mg/m ³
107-49-3	TEPP (ISO)	0.091 mg/m ³
3689-24-5	sulfotep (ISO)	0.32 mg/m ³
121-75-5	malathion (ISO)	15 mg/m ³

· PAC-2:

67-64-1	acetone	3200* ppm
110-54-3	n-hexane	2900* ppm
2104-64-5	O-ethyl O-4-nitrophenyl phenylphosphonothioate	5 mg/m ³
60-51-5	dimethoate (ISO)	30 mg/m ³
6923-22-4	monocrotophos (ISO)	0.63 mg/m ³
56-38-2	parathion (ISO)	1.5 mg/m ³
107-49-3	TEPP (ISO)	1 mg/m ³
3689-24-5	sulfotep (ISO)	3.5 mg/m ³
121-75-5	malathion (ISO)	120 mg/m ³

· PAC-3:

67-64-1	acetone	5700* ppm
110-54-3	n-hexane	8600** ppm
2104-64-5	O-ethyl O-4-nitrophenyl phenylphosphonothioate	50 mg/m ³
60-51-5	dimethoate (ISO)	170 mg/m ³
6923-22-4	monocrotophos (ISO)	3.5 mg/m ³
56-38-2	parathion (ISO)	2.0 mg/m ³
107-49-3	TEPP (ISO)	10 mg/m ³
3689-24-5	sulfotep (ISO)	35 mg/m ³
121-75-5	malathion (ISO)	390 mg/m ³

US

(Contd. on page 5)

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Version Number 3

Reviewed on 05/29/2019

Trade name: Organophosphorous Pesticides Standard (1X1 mL)

(Contd. of page 4)

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **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:

67-64-1 acetone

PEL	Long-term value: 2400 mg/m ³ , 1000 ppm
REL	Long-term value: 590 mg/m ³ , 250 ppm
TLV	Short-term value: 1187 mg/m ³ , 500 ppm
	Long-term value: 594 mg/m ³ , 250 ppm
BEI	

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: 176 mg/m ³ , 50 ppm
	Skin; BEI

· Ingredients with biological limit values:

67-64-1 acetone

BEI	50 mg/L
	Medium: urine
	Time: end of shift
	Parameter: Acetone (nonspecific)

110-54-3 n-hexane

BEI	0.4 mg/L
	Medium: urine
	Time: end of shift at end of workweek
	Parameter: 2,5-Hexanedione without hydrolysis

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Trade name: Organophosphorous Pesticides Standard (1X1 mL)

(Contd. of page 5)

· **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.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

· **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

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Fluid

Color: According to product specification

· **Odor:** Characteristic

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 55 °C (131 °F)

· **Flash point:** -22 °C (-7.6 °F)

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

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Trade name: Organophosphorous Pesticides Standard (1X1 mL)

(Contd. of page 6)

· Ignition temperature:	240 °C (464 °F)
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	1.2 Vol %
Upper:	13 Vol %
· Vapor pressure at 20 °C (68 °F):	175 hPa (131.3 mm Hg)
· Density at 20 °C (68 °F):	0.75547 g/cm ³ (6.3044 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:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	99.9 %
VOC content:	45.42 %
	343.1 g/l / 2.86 lb/gal
Solids content:	0.1 %
· 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.

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Reviewed on 05/29/2019

Trade name: Organophosphorous Pesticides Standard (1X1 mL)

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11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

ATE (Acute Toxicity Estimate)

Oral	LD50	11,023 mg/kg (rat)
Dermal	LD50	6,614 mg/kg (rabbit)

67-64-1 acetone

Oral	LD50	5,800 mg/kg (rat)
Dermal	LD50	20,000 mg/kg (rabbit)

110-54-3 n-hexane

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

56-38-2 parathion (ISO)

Oral	LD50	2 mg/kg (rat)
Dermal	LD50	6.8 mg/kg (rat)

3689-24-5 sulfotep (ISO)

Oral	LD50	5 mg/kg (rat)
Dermal	LD50	20 mg/kg (rat)
Inhalative	LC50/4 h	38 mg/L (rat)

121-75-5 malathion (ISO)

Oral	LD50	1,000 mg/kg (rat)
Dermal	LD50	8,790 mg/kg (rabbit)

· Primary irritant effect:

· **on the skin:** Irritant to skin and mucous membranes.

· **on the eye:** Irritating effect.

· **Sensitization:** No sensitizing effects known.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

56-38-2	parathion (ISO)	2B
121-75-5	malathion (ISO)	2A

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

US

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Trade name: Organophosphorous Pesticides Standard (1X1 mL)

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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 2 (Self-assessment): hazardous for water
 Do not allow product to reach ground water, water course or sewage system.
 Danger to drinking water if even small quantities leak into the ground.
- **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, IMDG, IATA | UN1993 |
| · UN proper shipping name | |
| · DOT | Flammable liquids, n.o.s. (Acetone, Hexanes) |
| · IMDG | FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES),
MARINE POLLUTANT |
| · IATA | FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES) |
| · Transport hazard class(es) | |
| · DOT | |
|  | |
| · Class | 3 Flammable liquids |

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Trade name: Organophosphorous Pesticides Standard (1X1 mL)

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· Label	3
· IMDG	
 	
· Class	3 Flammable liquids
· Label	3
· IATA	
	
· Class	3 Flammable liquids
· Label	3
· Packing group	
· DOT, IMDG, IATA	II
· Environmental hazards:	Product contains environmentally hazardous substances: n-hexane
· Marine pollutant:	Symbol (fish and tree)
· Special precautions for user	Warning: Flammable liquids
· Danger code (Kemler):	33
· EMS Number:	F-E, S-E
· Stowage Category	B
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1993 FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES), 3, II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

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

Section 355 (extremely hazardous substances):

2104-64-5 | O-ethyl O-4-nitrophenyl phenylphosphonothioate

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Trade name: Organophosphorous Pesticides Standard (1X1 mL)

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60-51-5	dimethoate (ISO)
6923-22-4	monocrotophos (ISO)
56-38-2	parathion (ISO)
107-49-3	TEPP (ISO)
3689-24-5	sulfotep (ISO)

· Section 313 (Specific toxic chemical listings):

110-54-3	n-hexane
60-51-5	dimethoate (ISO)
56-38-2	parathion (ISO)
121-75-5	malathion (ISO)

· TSCA (Toxic Substances Control Act):

67-64-1	acetone	ACTIVE
110-54-3	n-hexane	ACTIVE
60-51-5	dimethoate (ISO)	ACTIVE

· Hazardous Air Pollutants

110-54-3	n-hexane
56-38-2	parathion (ISO)

· Proposition 65
· Chemicals known to cause cancer:

56-38-2	parathion (ISO)
121-75-5	malathion (ISO)

· 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
----------	----------

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories
· EPA (Environmental Protection Agency)

67-64-1	acetone	I
110-54-3	n-hexane	II
56-38-2	parathion (ISO)	C

· TLV (Threshold Limit Value established by ACGIH)

67-64-1	acetone	A4
2104-64-5	O-ethyl O-4-nitrophenyl phenylphosphonothioate	A4
6923-22-4	monocrotophos (ISO)	A4
56-38-2	parathion (ISO)	A4
3689-24-5	sulfotep (ISO)	A4
121-75-5	malathion (ISO)	A4

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

None of the ingredients is listed.

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Version Number 3

Reviewed on 05/29/2019

Trade name: Organophosphorous Pesticides Standard (1X1 mL)

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· **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** 05/30/2019 / 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. 2: Flammable liquids – Category 2

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Repr. 2: Reproductive toxicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Asp. Tox. 1: Aspiration hazard – Category 1

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

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/30/2019

Version Number 2

Reviewed on 05/29/2019

1 Identification

- **Product identifier**
- **Trade name:** Organophosphorus Pesticides Standard (1X1 mL)
- **Part number:** SPM-844A-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**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS08 Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**

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

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

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

n-hexane

(Contd. on page 2)

US

Safety Data Sheet acc. to OSHA HCS

Printing date 05/30/2019

Version Number 2

Reviewed on 05/29/2019

Trade name: Organophosphorus Pesticides Standard (1X1 mL)

(Contd. of page 1)

acetone

· Hazard statements

Highly flammable liquid and vapor.

Causes skin irritation.

Causes serious eye irritation.

Suspected of damaging fertility or the unborn child.

May cause drowsiness or dizziness.

May cause damage to organs through prolonged or repeated exposure.

May be fatal if swallowed and enters airways.

· Precautionary statements

Obtain special instructions before use.

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

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

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

If swallowed: Immediately call a poison center/doctor.

Specific treatment (see on this label).

Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Call a poison center/doctor if you feel unwell.

Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO2, powder or water spray.

Store in a well-ventilated place. Keep container tightly closed.

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 = 2

Fire = 3

Reactivity = 0

· HMIS-ratings (scale 0 - 4)


Health = 2

Fire = 3

Reactivity = 0

(Contd. on page 3)

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(Contd. of page 2)

- **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:**

67-64-1	acetone	54.401%
110-54-3	n-hexane	45.323%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **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.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

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· 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:

67-64-1	acetone	200 ppm
110-54-3	n-hexane	260 ppm
21609-90-5	leptophos (ISO)	2.7 mg/m ³
563-12-2	ethion (ISO)	1.2 mg/m ³
732-11-6	phosmet (ISO)	0.049 mg/m ³
13171-21-6	phosphamidon	0.027 mg/m ³
786-19-6	carbophenothion (ISO)	0.62 mg/m ³
78-34-2	dioxathion (ISO)	0.31 mg/m ³
13071-79-9	S-tert-butylthiomethyl O,O-diethylphosphorodithioate	0.091 mg/m ³
470-90-6	chlorfenvinphos (ISO)	0.91 mg/m ³
2642-71-9	azinphos-ethyl (ISO)	0.35 mg/m ³

· PAC-2:

67-64-1	acetone	3200* ppm
110-54-3	n-hexane	2900* ppm
21609-90-5	leptophos (ISO)	30 mg/m ³
563-12-2	ethion (ISO)	13 mg/m ³
732-11-6	phosmet (ISO)	0.54 mg/m ³
13171-21-6	phosphamidon	0.3 mg/m ³
786-19-6	carbophenothion (ISO)	6.8 mg/m ³
78-34-2	dioxathion (ISO)	3.4 mg/m ³
13071-79-9	S-tert-butylthiomethyl O,O-diethylphosphorodithioate	1 mg/m ³
470-90-6	chlorfenvinphos (ISO)	10 mg/m ³
2642-71-9	azinphos-ethyl (ISO)	3.9 mg/m ³

· PAC-3:

67-64-1	acetone	5700* ppm
110-54-3	n-hexane	8600** ppm
21609-90-5	leptophos (ISO)	53 mg/m ³
563-12-2	ethion (ISO)	38 mg/m ³
732-11-6	phosmet (ISO)	77 mg/m ³
13171-21-6	phosphamidon	21 mg/m ³
786-19-6	carbophenothion (ISO)	24 mg/m ³
78-34-2	dioxathion (ISO)	39 mg/m ³
13071-79-9	S-tert-butylthiomethyl O,O-diethylphosphorodithioate	2.2 mg/m ³

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Trade name: Organophosphorus Pesticides Standard (1X1 mL)

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470-90-6	chlorfenvinphos (ISO)	500 mg/m ³
2642-71-9	azinphos-ethyl (ISO)	17 mg/m ³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **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:

67-64-1 acetone

PEL	Long-term value: 2400 mg/m ³ , 1000 ppm
REL	Long-term value: 590 mg/m ³ , 250 ppm
TLV	Short-term value: 1187 mg/m ³ , 500 ppm
	Long-term value: 594 mg/m ³ , 250 ppm
BEI	

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: 176 mg/m ³ , 50 ppm
	Skin; BEI

Ingredients with biological limit values:

67-64-1 acetone

BEI	50 mg/L
	Medium: urine
	Time: end of shift
	Parameter: Acetone (nonspecific)

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110-54-3 n-hexane

BEI	0.4 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 2.5-Hexanedione without hydrolysis
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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.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

· **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

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Fluid

Color: According to product specification

· **Odor:** Characteristic

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

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· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	55 °C (131 °F)
· Flash point:	-22 °C (-7.6 °F)
· Flammability (solid, gaseous):	Not applicable.
· Ignition temperature:	240 °C (464 °F)
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	1.2 Vol %
Upper:	13 Vol %
· Vapor pressure at 20 °C (68 °F):	175 hPa (131.3 mm Hg)
· Density:	Not determined.
· 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:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	99.8 %
VOC content:	45.43 %
	454.3 g/l / 3.79 lb/gal
Solids content:	0.1 %
· 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.

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11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

ATE (Acute Toxicity Estimate)

Oral	LD50	11,032 mg/kg (rat)
Dermal	LD50	6,619 mg/kg (rabbit)

67-64-1 acetone

Oral	LD50	5,800 mg/kg (rat)
Dermal	LD50	20,000 mg/kg (rabbit)

110-54-3 n-hexane

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

563-12-2 ethion (ISO)

Oral	LD50	13 mg/kg (rat)
Dermal	LD50	62 mg/kg (rat)
Inhalative	LC50/4 h	864 mg/L (rat)

732-11-6 phosmet (ISO)

Oral	LD50	92.5 mg/kg (rat)
Dermal	LD50	1,150 mg/kg (rat) >3,160 mg/kg (rabbit)
Inhalative	LC50/4 h	54 mg/L (rat)

78-34-2 dioxathion (ISO)

Oral	LD50	23 mg/kg (rat)
Dermal	LD50	63 mg/kg (rat)
Inhalative	LC50/4 h	1,398 mg/L (rat)

13071-79-9 S-tert-butylthiomethyl O,O-diethylphosphorodithioate

Oral	LD50	4.5 mg/kg (rat)
------	------	-----------------

2642-71-9 azinphos-ethyl (ISO)

Dermal	LD50	250 mg/kg (rat)
Inhalative	LC50/4 h	390 mg/L (rat)

· Primary irritant effect:

· on the skin: Irritant to skin and mucous membranes.

· on the eye: Irritating effect.

· Sensitization: No sensitizing effects known.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

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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 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

· 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, IMDG, IATA**

UN1993

· UN proper shipping name**· DOT****· IMDG****· IATA**

Flammable liquids, n.o.s. (Acetone, Hexanes)

FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES),
MARINE POLLUTANT

FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES)

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· **Transport hazard class(es)**

· **DOT**

· **Class**

3 Flammable liquids

· **Label**

3

· **IMDG**

· **Class**

3 Flammable liquids

· **Label**

3

· **IATA**

· **Class**

3 Flammable liquids

· **Label**

3

· **Packing group**

· **DOT, IMDG, IATA**

II

· **Environmental hazards:**

Product contains environmentally hazardous substances: azinphos-ethyl (ISO), ethion (ISO)

· **Marine pollutant:**

Symbol (fish and tree)

· **Special precautions for user**

Warning: Flammable liquids

· **Danger code (Kemler):**

33

· **EMS Number:**

F-E,S-E

· **Stowage Category**

B

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

· **Transport/Additional information:**

· **DOT**

· **Quantity limitations**

On passenger aircraft/rail: 5 L

On cargo aircraft only: 60 L

· **IMDG**

· **Limited quantities (LQ)**

1L

· **Excepted quantities (EQ)**

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

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· **UN "Model Regulation":** UN 1993 FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES), 3, II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

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

· Section 355 (extremely hazardous substances):

21609-90-5	leptophos (ISO)
563-12-2	ethion (ISO)
732-11-6	phosmet (ISO)
13171-21-6	phosphamidon
786-19-6	carbophenothion (ISO)
78-34-2	dioxathion (ISO)
13071-79-9	S-tert-butylthiomethyl O,O-diethylphosphorodithioate
470-90-6	chlorfenvinphos (ISO)
2642-71-9	azinphos-ethyl (ISO)

· Section 313 (Specific toxic chemical listings):

110-54-3	n-hexane
52-85-7	famphur

· TSCA (Toxic Substances Control Act):

67-64-1	acetone	ACTIVE
110-54-3	n-hexane	ACTIVE
52-85-7	famphur	ACTIVE

· Hazardous Air Pollutants

110-54-3	n-hexane
----------	----------

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· 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
----------	----------

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency)

67-64-1	acetone	I
110-54-3	n-hexane	II

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· TLV (Threshold Limit Value established by ACGIH)

67-64-1	acetone	A4
563-12-2	ethion (ISO)	A4
78-34-2	dioxathion (ISO)	A4

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

None of the ingredients is listed.

· 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 05/30/2019 / 1

· 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. 2: Flammable liquids – Category 2

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Repr. 2: Reproductive toxicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Asp. Tox. 1: Aspiration hazard – Category 1

· * Data compared to the previous version altered.

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Version Number 3

Reviewed on 05/29/2019

1 Identification

- **Product identifier**
- **Trade name:** Organophosphorus Pesticides Standard (1X1 mL)
- **Part number:** SPM-854-1
- **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**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS08 Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**

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

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

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

n-hexane

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Trade name: Organophosphorus Pesticides Standard (1X1 mL)

(Contd. of page 1)

acetone

· Hazard statements

Highly flammable liquid and vapor.

Causes skin irritation.

Causes serious eye irritation.

Suspected of damaging fertility or the unborn child.

May cause drowsiness or dizziness.

May cause damage to organs through prolonged or repeated exposure.

May be fatal if swallowed and enters airways.

· Precautionary statements

Obtain special instructions before use.

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

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

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

If swallowed: Immediately call a poison center/doctor.

Specific treatment (see on this label).

Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Call a poison center/doctor if you feel unwell.

Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO₂, powder or water spray.

Store in a well-ventilated place. Keep container tightly closed.

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 = 2

Fire = 3

Reactivity = 0

· HMIS-ratings (scale 0 - 4)


Health = 2

Fire = 3

Reactivity = 0

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Trade name: Organophosphorus Pesticides Standard (1X1 mL)

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- **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:

67-64-1	acetone	54.416%
110-54-3	n-hexane	45.335%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **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.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

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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:

67-64-1	acetone	200 ppm
110-54-3	n-hexane	260 ppm
141-66-2	(E)-3-(dimethylamino)-1-methyl-3-oxoprop-1-enyl dimethyl phosphate	0.15 mg/m ³
944-22-9	fonofos (ISO)	0.3 mg/m ³
52-68-6	trichlorfon (ISO)	3 mg/m ³
297-97-2	O,O-diethyl O-pyrazin-2-yl phosphorothioate	0.32 mg/m ³

PAC-2:

67-64-1	acetone	3200* ppm
110-54-3	n-hexane	2900* ppm
141-66-2	(E)-3-(dimethylamino)-1-methyl-3-oxoprop-1-enyl dimethyl phosphate	0.9 mg/m ³
944-22-9	fonofos (ISO)	1.3 mg/m ³
52-68-6	trichlorfon (ISO)	13 mg/m ³
297-97-2	O,O-diethyl O-pyrazin-2-yl phosphorothioate	3.5 mg/m ³

PAC-3:

67-64-1	acetone	5700* ppm
110-54-3	n-hexane	8600** ppm
141-66-2	(E)-3-(dimethylamino)-1-methyl-3-oxoprop-1-enyl dimethyl phosphate	17 mg/m ³
944-22-9	fonofos (ISO)	53 mg/m ³
52-68-6	trichlorfon (ISO)	57 mg/m ³
297-97-2	O,O-diethyl O-pyrazin-2-yl phosphorothioate	21 mg/m ³

7 Handling and storage

Handling:
Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles: Store in a cool location.

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- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **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:

67-64-1 acetone

PEL	Long-term value: 2400 mg/m ³ , 1000 ppm
REL	Long-term value: 590 mg/m ³ , 250 ppm
TLV	Short-term value: 1187 mg/m ³ , 500 ppm
	Long-term value: 594 mg/m ³ , 250 ppm
BEI	

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: 176 mg/m ³ , 50 ppm
	Skin; BEI

Ingredients with biological limit values:

67-64-1 acetone

BEI	50 mg/L
	Medium: urine
	Time: end of shift
	Parameter: Acetone (nonspecific)

110-54-3 n-hexane

BEI	0.4 mg/L
	Medium: urine
	Time: end of shift at end of workweek
	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.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the eyes and skin.

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

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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

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Fluid

Color: According to product specification

· **Odor:** Characteristic

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 55 °C (131 °F)

· **Flash point:** -22 °C (-7.6 °F)

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

· **Ignition temperature:** 240 °C (464 °F)

· **Decomposition temperature:** Not determined.

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

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· **Explosion limits:**

Lower: 1.2 Vol %

Upper: 13 Vol %

· **Vapor pressure at 20 °C (68 °F):** 175 hPa (131.3 mm Hg)

· **Density:** Not determined.

· **Relative density** Not determined.

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· 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:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	99.9 %
VOC content:	45.47 %
	454.7 g/l / 3.79 lb/gal
· Solids content:	0.1 %
· 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:**

ATE (Acute Toxicity Estimate)

Oral	LD50	11,029 mg/kg (rat)
Dermal	LD50	6,617 mg/kg (rabbit)

67-64-1 acetone

Oral	LD50	5,800 mg/kg (rat)
Dermal	LD50	20,000 mg/kg (rabbit)

110-54-3 n-hexane

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

5598-13-0 chlorpyrifos-methyl

Oral	LD50	1,828 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rabbit)

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Inhalative	LC50/4 h	>670 mg/L (rat)
7700-17-6 crotoxyphos (ISO)		
Oral	LD50	38.4 mg/kg (rat)
Dermal	LD50	385 mg/kg (rabbit)
52-68-6 trichlorfon (ISO)		
Oral	LD50	882 mg/kg (rat)
Dermal	LD50	2,000 mg/kg (rat)

· **Primary irritant effect:**

· **on the skin:** Irritant to skin and mucous membranes.

· **on the eye:** Irritating effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

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

52-68-6 trichlorfon (ISO)

3

· **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 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

· **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.

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- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· Not Regulated, De minimus Quantities	-
· UN-Number	UN1993
· DOT, IMDG, IATA	
· UN proper shipping name	Flammable liquids, n.o.s. (Acetone, Hexanes)
· DOT	FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES),
· IMDG	MARINE POLLUTANT
· IATA	FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES)
· Transport hazard class(es)	
· DOT	
	
· Class	3 Flammable liquids
· Label	3
· IMDG	
 	
· Class	3 Flammable liquids
· Label	3
· IATA	
	
· Class	3 Flammable liquids
· Label	3
· Packing group	
· DOT, IMDG, IATA	II
· Environmental hazards:	Product contains environmentally hazardous substances: n-hexane
· Marine pollutant:	Symbol (fish and tree)
· Special precautions for user	Warning: Flammable liquids
· Danger code (Kemler):	33
· EMS Number:	F-E, <u>S</u> -E

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· Stowage Category	B
· Transport in bulk according to Annex II of MARPOL/73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1993 FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES), 3, II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

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

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

141-66-2	(E)-3-(dimethylamino)-1-methyl-3-oxoprop-1-enyl dimethyl phosphate
944-22-9	fonofos (ISO)
122-14-5	fenitrothion (ISO)
297-97-2	O,O-diethyl O-pyrazin-2-yl phosphorothioate

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

110-54-3	n-hexane
5598-13-0	chlorpyrifos-methyl
52-68-6	trichlorfon (ISO)

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

67-64-1	acetone	ACTIVE
110-54-3	n-hexane	ACTIVE
297-97-2	O,O-diethyl O-pyrazin-2-yl phosphorothioate	ACTIVE

· **Hazardous Air Pollutants**

110-54-3	n-hexane
----------	----------

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **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
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· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories
· EPA (Environmental Protection Agency)

67-64-1	acetone	I
110-54-3	n-hexane	II

· TLV (Threshold Limit Value established by ACGIH)

67-64-1	acetone	A4
141-66-2	(E)-3-(dimethylamino)-1-methyl-3-oxoprop-1-enyl dimethyl phosphate	A4
944-22-9	fonofos (ISO)	A4
52-68-6	trichlorfon (ISO)	A4

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

None of the ingredients is listed.

· 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 05/30/2019 / 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. 2: Flammable liquids – Category 2

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Repr. 2: Reproductive toxicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Asp. Tox. 1: Aspiration hazard – Category 1

· * Data compared to the previous version altered.

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1 Identification

- **Product identifier**
- **Trade name:** Industrial Chemicals Standard (1X1 mL)
- **Part number:** SPM-864-1
- **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**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS08 Health hazard

Carc. 1B H350 May cause cancer.

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**

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

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

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Trade name: Industrial Chemicals Standard (1X1 mL)

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· Hazard-determining components of labeling:

n-hexane
hexamethylphosphoric triamide
acetone

· Hazard statements

Highly flammable liquid and vapor.
Causes skin irritation.
Causes serious eye irritation.
May cause cancer.
Suspected of damaging fertility or the unborn child.
May cause drowsiness or dizziness.
May cause damage to organs through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.

· Precautionary statements

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Immediately call a poison center/doctor.
Specific treatment (see on this label).
Do NOT induce vomiting.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
IF exposed or concerned: Get medical advice/attention.
Call a poison center/doctor if you feel unwell.
Get medical advice/attention if you feel unwell.
Take off contaminated clothing and wash it before reuse.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
In case of fire: Use for extinction: CO₂, powder or water spray.
Store in a well-ventilated place. Keep container tightly closed.
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 = 2
Fire = 3
Reactivity = 0

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· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	3	Fire = 3
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:

67-64-1	acetone	54.522%
110-54-3	n-hexane	45.423%
680-31-9	hexamethylphosphoric triamide	0.0276%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **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.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.

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- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
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:

67-64-1	acetone	200 ppm
110-54-3	n-hexane	260 ppm
680-31-9	hexamethylphosphoric triamide	0.34 ppm
78-30-8	tricresyl phosphate o-o-o, o-o-m, o-o-p, o-m-m, o-m-p, o-p-p	0.3 ppm

· PAC-2:

67-64-1	acetone	3200* ppm
110-54-3	n-hexane	2900* ppm
680-31-9	hexamethylphosphoric triamide	3.7 ppm
78-30-8	tricresyl phosphate o-o-o, o-o-m, o-o-p, o-m-m, o-m-p, o-p-p	13 ppm

· PAC-3:

67-64-1	acetone	5700* ppm
110-54-3	n-hexane	8600** ppm
680-31-9	hexamethylphosphoric triamide	17 ppm
78-30-8	tricresyl phosphate o-o-o, o-o-m, o-o-p, o-m-m, o-m-p, o-p-p	40 ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.

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- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
 - Keep receptacle tightly sealed.
 - Store in cool, dry conditions in well sealed receptacles.
- **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:

67-64-1 acetone

PEL	Long-term value: 2400 mg/m ³ , 1000 ppm
REL	Long-term value: 590 mg/m ³ , 250 ppm
TLV	Short-term value: 1187 mg/m ³ , 500 ppm
	Long-term value: 594 mg/m ³ , 250 ppm
BEI	

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: 176 mg/m ³ , 50 ppm
	Skin; BEI

680-31-9 hexamethylphosphoric triamide

REL	See Pocket Guide App. A
TLV	Skin

· Ingredients with biological limit values:

67-64-1 acetone

BEI	50 mg/L
	Medium: urine
	Time: end of shift
	Parameter: Acetone (nonspecific)

110-54-3 n-hexane

BEI	0.4 mg/L
	Medium: urine
	Time: end of shift at end of workweek
	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.
 - Immediately remove all soiled and contaminated clothing.

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Trade name: Industrial Chemicals Standard (1X1 mL)

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Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

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

Eye protection:


Tightly sealed goggles

9 Physical and chemical properties

Information on basic physical and chemical properties
General Information
Appearance:
Form: Fluid

Color: According to product specification

Odor: Characteristic

Odor threshold: Not determined.

pH-value: Not determined.

Change in condition
Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 55 °C (131 °F)

Flash point: -22 °C (-7.6 °F)

Flammability (solid, gaseous): Not applicable.

Ignition temperature: 240 °C (464 °F)

Decomposition temperature: Not determined.

Auto igniting: Product is not selfigniting.

(Contd. on page 7)

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Trade name: Industrial Chemicals Standard (1X1 mL)

(Contd. of page 6)

· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	1.2 Vol %
Upper:	13 Vol %
· Vapor pressure at 20 °C (68 °F):	175 hPa (131.3 mm Hg)
· Density at 20 °C (68 °F):	0.75474 g/cm ³ (6.29831 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:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	100.0 %
VOC content:	45.45 %
	343.0 g/l / 2.86 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:**
ATE (Acute Toxicity Estimate)

Oral	LD50	11,008 mg/kg (rat)
Dermal	LD50	6,605 mg/kg (rabbit)

67-64-1 acetone

Oral	LD50	5,800 mg/kg (rat)
Dermal	LD50	20,000 mg/kg (rabbit)

(Contd. on page 8)

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Version Number 3

Reviewed on 05/29/2019

Trade name: Industrial Chemicals Standard (1X1 mL)

(Contd. of page 7)

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:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.

· **Sensitization:** No sensitizing effects known.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· Carcinogenic categories
· IARC (International Agency for Research on Cancer)

680-31-9	hexamethylphosphoric triamide	2B
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· NTP (National Toxicology Program)

680-31-9	hexamethylphosphoric triamide	R
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· 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 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

· 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.

US
(Contd. on page 9)

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acc. to OSHA HCS

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Trade name: Industrial Chemicals Standard (1X1 mL)

(Contd. of page 8)

14 Transport information

· Not Regulated, De minimus Quantities -

· UN-Number

· DOT, IMDG, IATA

UN1993

· UN proper shipping name

· DOT

· IMDG

· IATA

Flammable liquids, n.o.s. (Acetone, Hexanes)

FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES),
MARINE POLLUTANT

FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES)

· Transport hazard class(es)

· DOT



· Class

3 Flammable liquids

· Label

3

· IMDG



· Class

3 Flammable liquids

· Label

3

· IATA



· Class

3 Flammable liquids

· Label

3

· Packing group

· DOT, IMDG, IATA

II

· Environmental hazards:

· Marine pollutant:

Product contains environmentally hazardous substances: n-hexane

Symbol (fish and tree)

· Special precautions for user

· Danger code (Kemler):

· EMS Number:

· Stowage Category

Warning: Flammable liquids

33

F-E,S-E

B

· Transport in bulk according to Annex II of
MARPOL73/78 and the IBC Code

Not applicable.

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Trade name: Industrial Chemicals Standard (1X1 mL)

(Contd. of page 9)

· Transport/Additional information:
· DOT
· Quantity limitations

On passenger aircraft/rail: 5 L

On cargo aircraft only: 60 L

· IMDG
· Limited quantities (LQ)

1L

· Excepted quantities (EQ)

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

· UN "Model Regulation":

UN 1993 FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES), 3, II, ENVIRONMENTALLY HAZARDOUS

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):

110-54-3 n-hexane

680-31-9 hexamethylphosphoric triamide

· TSCA (Toxic Substances Control Act):

67-64-1 acetone

ACTIVE

110-54-3 n-hexane

ACTIVE

680-31-9 hexamethylphosphoric triamide

ACTIVE

78-30-8 tricresyl phosphate o-o-o, o-o-m, o-o-p, o-m-m, o-m-p, o-p-p

ACTIVE

· Hazardous Air Pollutants

110-54-3 n-hexane

680-31-9 hexamethylphosphoric triamide

· Proposition 65
· Chemicals known to cause cancer:

680-31-9 hexamethylphosphoric triamide

· 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

680-31-9 hexamethylphosphoric triamide

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

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Trade name: Industrial Chemicals Standard (1X1 mL)

(Contd. of page 10)

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

67-64-1	acetone	I
110-54-3	n-hexane	II

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

67-64-1	acetone	A4
680-31-9	hexamethylphosphoric triamide	A3
78-30-8	tricresyl phosphate o-o-o, o-o-m, o-o-p, o-m-m, o-m-p, o-p-p	A4

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

680-31-9	hexamethylphosphoric triamide	
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· **National regulations:**

· **Additional classification according to Decree on Hazardous Materials:**

Carcinogenic hazardous material group III (dangerous).

· **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** 05/30/2019 / 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. 2: Flammable liquids – Category 2

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Carc. 1B: Carcinogenicity – Category 1B

Repr. 2: Reproductive toxicity – Category 2

(Contd. on page 12)

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Trade name: Industrial Chemicals Standard (1X1 mL)

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1

(Contd. of page 11)

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

US

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/30/2019

Version Number 2

Reviewed on 05/29/2019

1 Identification

- **Product identifier**
- **Trade name:** Triazine Herbicides Standard (1X1 mL)
- **Part number:** SPM-874-1
- **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**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS08 Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**

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

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

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

n-hexane

(Contd. on page 2)

Safety Data Sheet acc. to OSHA HCS

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Trade name: Triazine Herbicides Standard (1X1 mL)

(Contd. of page 1)

acetone

· Hazard statements

Highly flammable liquid and vapor.

Causes skin irritation.

Causes serious eye irritation.

Suspected of damaging fertility or the unborn child.

May cause drowsiness or dizziness.

May cause damage to organs through prolonged or repeated exposure.

May be fatal if swallowed and enters airways.

· Precautionary statements

Obtain special instructions before use.

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

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

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

If swallowed: Immediately call a poison center/doctor.

Specific treatment (see on this label).

Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Call a poison center/doctor if you feel unwell.

Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO₂, powder or water spray.

Store in a well-ventilated place. Keep container tightly closed.

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 = 2

Fire = 3

Reactivity = 0

· HMIS-ratings (scale 0 - 4)


Health = 2

Fire = 3

Reactivity = 0

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Trade name: Triazine Herbicides Standard (1X1 mL)

(Contd. of page 2)

- **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:**

67-64-1	acetone	54.522%
110-54-3	n-hexane	45.423%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **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.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

(Contd. on page 4)

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Trade name: Triazine Herbicides Standard (1X1 mL)

(Contd. of page 3)

· 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:

67-64-1	acetone	200 ppm
110-54-3	n-hexane	260 ppm

· PAC-2:

67-64-1	acetone	3200* ppm
110-54-3	n-hexane	2900* ppm

· PAC-3:

67-64-1	acetone	5700* ppm
110-54-3	n-hexane	8600** ppm

7 Handling and storage

· Handling:
· Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

· Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

· Conditions for safe storage, including any incompatibilities
· Storage:
· Requirements to be met by storerooms and receptacles: Store in a cool location.

· Information about storage in one common storage facility: Not required.

· Further information about storage conditions:

Keep receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

· 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:

67-64-1 acetone	
PEL	Long-term value: 2400 mg/m ³ , 1000 ppm

(Contd. on page 5)

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Trade name: Triazine Herbicides Standard (1X1 mL)

(Contd. of page 4)

REL	Long-term value: 590 mg/m ³ , 250 ppm
TLV	Short-term value: 1187 mg/m ³ , 500 ppm
	Long-term value: 594 mg/m ³ , 250 ppm
	BEI

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: 176 mg/m ³ , 50 ppm
	Skin; BEI

Ingredients with biological limit values:
67-64-1 acetone

BEI	50 mg/L
	Medium: urine
	Time: end of shift
	Parameter: Acetone (nonspecific)

110-54-3 n-hexane

BEI	0.4 mg/L
	Medium: urine
	Time: end of shift at end of workweek
	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.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.

· **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

(Contd. on page 6)

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Reviewed on 05/29/2019

Trade name: Triazine Herbicides Standard (1X1 mL)

(Contd. of page 5)

· Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Fluid
Color:	According to product specification
· Odor:	Characteristic
· Odor threshold:	Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	55 °C (131 °F)

· Flash point: -22 °C (-7.6 °F)

· Flammability (solid, gaseous): Not applicable.

· Ignition temperature: 240 °C (464 °F)

· Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

· Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· Explosion limits:

Lower:	1.2 Vol %
Upper:	13 Vol %

· Vapor pressure at 20 °C (68 °F): 175 hPa (131.3 mm Hg)

· Density: Not determined.

· 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:

Dynamic:	Not determined.
Kinematic:	Not determined.

(Contd. on page 7)

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Trade name: Triazine Herbicides Standard (1X1 mL)

(Contd. of page 6)

· Solvent content:	
Organic solvents:	99.9 %
VOC content:	45.42 %
	454.2 g/l / 3.79 lb/gal
· Solids content:	0.1 %
· 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:**
ATE (Acute Toxicity Estimate)

Oral	LD50	11,008 mg/kg (rat)
Dermal	LD50	6,605 mg/kg (rabbit)

67-64-1 acetone

Oral	LD50	5,800 mg/kg (rat)
Dermal	LD50	20,000 mg/kg (rabbit)

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:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

- **Carcinogenic categories**

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

122-34-9	simazine (ISO)	3
1912-24-9	atrazine (ISO)	3

(Contd. on page 8)

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Trade name: Triazine Herbicides Standard (1X1 mL)

(Contd. of page 7)

· 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 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

· 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, IMDG, IATA

UN1993

· UN proper shipping name
· DOT
· IMDG
· IATA

Flammable liquids, n.o.s. (Acetone, Hexanes)

FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES),
MARINE POLLUTANT

FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES)

(Contd. on page 9)

US

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Trade name: Triazine Herbicides Standard (1X1 mL)

(Contd. of page 8)

· **Transport hazard class(es)**

· **DOT**

· **Class**

3 Flammable liquids

· **Label**

3

· **IMDG**

· **Class**

3 Flammable liquids

· **Label**

3

· **IATA**

· **Class**

3 Flammable liquids

· **Label**

3

· **Packing group**

· **DOT, IMDG, IATA**

II

· **Environmental hazards:**

Product contains environmentally hazardous substances: atrazine (ISO), n-hexane

· **Marine pollutant:**

Symbol (fish and tree)

· **Special precautions for user**

Warning: Flammable liquids

· **Danger code (Kemler):**

33

· **EMS Number:**

F-E,S-E

· **Stowage Category**

B

· **Transport in bulk according to Annex II of MARPOL/73/78 and the IBC Code**

Not applicable.

· **Transport/Additional information:**

· **DOT**

· **Quantity limitations**

On passenger aircraft/rail: 5 L

On cargo aircraft only: 60 L

· **IMDG**

· **Limited quantities (LQ)**

1L

· **Excepted quantities (EQ)**

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

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Safety Data Sheet

acc. to OSHA HCS

Printing date 05/30/2019

Version Number 2

Reviewed on 05/29/2019

Trade name: Triazine Herbicides Standard (1X1 mL)

(Contd. of page 9)

· **UN "Model Regulation":** UN 1993 FLAMMABLE LIQUID, N.O.S. (ACETONE, HEXANES), 3, II, ENVIRONMENTALLY HAZARDOUS

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):**

110-54-3 n-hexane

122-34-9 simazine (ISO)

1912-24-9 atrazine (ISO)

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

67-64-1 acetone

ACTIVE

110-54-3 n-hexane

ACTIVE

122-34-9 simazine (ISO)

ACTIVE

1912-24-9 atrazine (ISO)

ACTIVE

· **Hazardous Air Pollutants**

110-54-3 n-hexane

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

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

122-34-9 simazine (ISO)

1912-24-9 atrazine (ISO)

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

110-54-3 n-hexane

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

122-34-9 simazine (ISO)

1912-24-9 atrazine (ISO)

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

67-64-1 acetone

I

110-54-3 n-hexane

II

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

67-64-1 acetone

A4

1912-24-9 atrazine (ISO)

A4

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

None of the ingredients is listed.

(Contd. on page 11)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/30/2019

Version Number 2

Reviewed on 05/29/2019

Trade name: Triazine Herbicides Standard (1X1 mL)

(Contd. of page 10)

· **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** 05/30/2019 / 1· **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. 2: Flammable liquids – Category 2

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Repr. 2: Reproductive toxicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Asp. Tox. 1: Aspiration hazard – Category 1

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

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/30/2019

Version Number 3

Reviewed on 04/27/2019

1 Identification

- **Product identifier**
- **Trade name:** Surrogate Standard (1X1 mL)
- **Part number:** ISM-570-1
- **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**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.



GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

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



GHS02



GHS07



GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**
acetone
- **Hazard statements**
Highly flammable liquid and vapor.
Causes serious eye irritation.
Suspected of causing cancer.

(Contd. on page 2)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/30/2019

Version Number 3

Reviewed on 04/27/2019

Trade name: Surrogate Standard (1X1 mL)

(Contd. of page 1)

May cause drowsiness or dizziness.

· Precautionary statements

Obtain special instructions before use.

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

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

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

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Call a poison center/doctor if you feel unwell.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO2, powder or water spray.

Store in a well-ventilated place. Keep container tightly closed.

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 = 2

Fire = 3

Reactivity = 0

· HMIS-ratings (scale 0 - 4)


Health = 2

Fire = 3

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:

67-64-1	acetone	99.747%
---------	---------	---------

(Contd. on page 3)

US

Safety Data Sheet acc. to OSHA HCS

Printing date 05/30/2019

Version Number 3

Reviewed on 04/27/2019

Trade name: Surrogate Standard (1X1 mL)

(Contd. of page 2)

126-73-8 tributyl phosphate

0.126%

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately rinse with water.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **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.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **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:

67-64-1	acetone	200 ppm
126-73-8	tributyl phosphate	1.4 ppm
115-86-6	triphenyl phosphate	9 mg/m ³

· PAC-2:

67-64-1	acetone	3200* ppm
126-73-8	tributyl phosphate	8.3 ppm

(Contd. on page 4)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/30/2019

Version Number 3

Reviewed on 04/27/2019

Trade name: Surrogate Standard (1X1 mL)

(Contd. of page 3)

115-86-6	triphenyl phosphate	360 mg/m ³
· PAC-3:		
67-64-1	acetone	5700* ppm
126-73-8	tributyl phosphate	125 ppm
115-86-6	triphenyl phosphate	2,100 mg/m ³

7 Handling and storage

· Handling:

· Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

· Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

· Conditions for safe storage, including any incompatibilities

· Storage:

· **Requirements to be met by storerooms and receptacles:** Store in a cool location.

· **Information about storage in one common storage facility:** Not required.

· Further information about storage conditions:

Keep receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

· **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:

67-64-1 acetone

PEL Long-term value: 2400 mg/m³, 1000 ppm

REL Long-term value: 590 mg/m³, 250 ppm

TLV Short-term value: 1187 mg/m³, 500 ppm

Long-term value: 594 mg/m³, 250 ppm

BEI

126-73-8 tributyl phosphate

PEL Long-term value: 5 mg/m³

REL Long-term value: 2.5 mg/m³, 0.2 ppm

TLV Long-term value: 5* mg/m³

BEI-C, *inhalable fraction and vapor

(Contd. on page 5)

Safety Data Sheet acc. to OSHA HCS

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Trade name: Surrogate Standard (1X1 mL)

(Contd. of page 4)

Ingredients with biological limit values:
67-64-1 acetone

BEI	50 mg/L
	Medium: urine
	Time: end of shift
	Parameter: Acetone (nonspecific)

126-73-8 tributyl phosphate

BEI	70 % of baseline
	Medium: red blood cells
	Time: discretionary
	Parameter: Cholinesterase activity (nonspecific)

· **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.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.

· **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

· **Eye protection:**



Tightly sealed goggles

US

(Contd. on page 6)

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acc. to OSHA HCS

Printing date 05/30/2019

Version Number 3

Reviewed on 04/27/2019

Trade name: Surrogate Standard (1X1 mL)

(Contd. of page 5)

9 Physical and chemical properties

· Information on basic physical and chemical properties	
· General Information	
· Appearance:	
Form:	Fluid
Color:	Colorless
· Odor:	Characteristic
· Odor threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
Melting point/Melting range:	-94.7 °C (-138.5 °F)
Boiling point/Boiling range:	55 °C (131 °F)
· Flash point:	-17 °C (1.4 °F)
· Flammability (solid, gaseous):	Not applicable.
· Ignition temperature:	465 °C (869 °F)
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	2.6 Vol %
Upper:	13 Vol %
· Vapor pressure at 20 °C (68 °F):	245.3 hPa (184 mm Hg)
· Density at 20 °C (68 °F):	0.80082 g/cm ³ (6.68284 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:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	99.9 %
VOC content:	0.13 %
	1.0 g/l / 0.01 lb/gal
Solids content:	0.1 %
· Other information	No further relevant information available.

US

(Contd. on page 7)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/30/2019

Version Number 3

Reviewed on 04/27/2019

Trade name: Surrogate Standard (1X1 mL)

(Contd. of page 6)

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 >3,354 mg/L (rat)

67-64-1 acetone

Oral LD50 5,800 mg/kg (rat)

Dermal LD50 20,000 mg/kg (rabbit)

126-73-8 tributyl phosphate

Oral LD50 1,390 mg/kg (rat)

Dermal LD50 >3,100 mg/kg (rat)

Inhalative LC50/4 h >4.24 mg/L (rat)

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

- **Carcinogenic categories**

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

None of the ingredients is listed.

· **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.

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS

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Reviewed on 04/27/2019

Trade name: Surrogate Standard (1X1 mL)

(Contd. of page 7)

- **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, IMDG, IATA | | UN1090 |
| · UN proper shipping name | | |
| · DOT | | Acetone solution |
| · IMDG, IATA | | ACETONE solution |
| · Transport hazard class(es) | | |
| · DOT | | |
|  | | |
| · Class | | 3 Flammable liquids |
| · Label | | 3 |
| | | |
| · IMDG, IATA | | |
|  | | |
| · Class | | 3 Flammable liquids |
| · Label | | 3 |

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Version Number 3

Reviewed on 04/27/2019

Trade name: Surrogate Standard (1X1 mL)

(Contd. of page 8)

· Packing group	II
· DOT, IMDG, IATA	
· Environmental hazards:	Not applicable.
· Special precautions for user	Warning: Flammable liquids
· Danger code (Kemler):	33
· EMS Number:	F-E,S-D
· Stowage Category	B
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1090 ACETONE SOLUTION, 3, II

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):

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

67-64-1	acetone	ACTIVE
126-73-8	tributyl phosphate	ACTIVE
115-86-6	triphenyl phosphate	ACTIVE

· Hazardous Air Pollutants

None of the ingredients is listed.

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

(Contd. on page 10)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/30/2019

Version Number 3

Reviewed on 04/27/2019

Trade name: Surrogate Standard (1X1 mL)

(Contd. of page 9)

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories
· EPA (Environmental Protection Agency)

67-64-1 acetone

I

· TLV (Threshold Limit Value established by ACGIH)

67-64-1 acetone

A4

115-86-6 triphenyl phosphate

A4

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

None of the ingredients is listed.

· 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 05/30/2019 / 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. 2: Flammable liquids – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Carc. 2: Carcinogenicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· * Data compared to the previous version altered.

Safety Data Sheet acc. to OSHA HCS

Printing date 05/30/2019

Version Number 2

Reviewed on 04/28/2019

1 Identification

- **Product identifier**
- **Trade name:** 1-Bromo-2-nitrobenzene Standard (1X1 mL)
- **Part number:** PPS-350-1
- **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**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

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



GHS02 GHS07

- **Signal word** Danger
- **Hazard-determining components of labeling:**
acetone
- **Hazard statements**
Highly flammable liquid and vapor.
Causes serious eye irritation.
May cause drowsiness or dizziness.
- **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.

(Contd. on page 2)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/30/2019

Version Number 2

Reviewed on 04/28/2019

Trade name: 1-Bromo-2-nitrobenzene Standard (1X1 mL)

(Contd. of page 1)

Take precautionary measures against static discharge.
Avoid breathing dust/fume/gas/mist/vapors/spray
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
Call a poison center/doctor if you feel unwell.
If eye irritation persists: Get medical advice/attention.
In case of fire: Use for extinction: CO₂, powder or water spray.
Store in a well-ventilated place. Keep container tightly closed.
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)**



· **HMIS-ratings (scale 0 - 4)**



· **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:**

67-64-1	acetone	99.874%
---------	---------	---------

4 First-aid measures

· **Description of first aid measures**

· **General information:** Immediately remove any clothing soiled by the product.

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

· **After skin contact:** Immediately rinse with water.

· **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:** If symptoms persist consult doctor.

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/30/2019

Version Number 2

Reviewed on 04/28/2019

Trade name: 1-Bromo-2-nitrobenzene Standard (1X1 mL)

(Contd. of page 2)

- **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.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **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:

67-64-1	acetone	200 ppm
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· PAC-2:

67-64-1	acetone	3200* ppm
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· PAC-3:

67-64-1	acetone	5700* ppm
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7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

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- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
 - Keep receptacle tightly sealed.
 - Store in cool, dry conditions in well sealed receptacles.
- **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:

67-64-1 acetone

PEL	Long-term value: 2400 mg/m ³ , 1000 ppm
REL	Long-term value: 590 mg/m ³ , 250 ppm
TLV	Short-term value: 1187 mg/m ³ , 500 ppm
	Long-term value: 594 mg/m ³ , 250 ppm
BEI	

Ingredients with biological limit values:

67-64-1 acetone

BEI	50 mg/L
	Medium: urine
	Time: end of shift
	Parameter: Acetone (nonspecific)

- **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.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.

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.

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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:


Tightly sealed goggles

9 Physical and chemical properties

Information on basic physical and chemical properties
General Information
Appearance:
Form: Fluid

Color: Colorless

Odor: Characteristic

Odor threshold: Not determined.

pH-value: Not determined.

Change in condition
Melting point/Melting range: -94.7 °C (-138.5 °F)

Boiling point/Boiling range: 55 °C (131 °F)

Flash point: -17 °C (1.4 °F)

Flammability (solid, gaseous): Not applicable.

Ignition temperature: 465 °C (869 °F)

Decomposition temperature: Not determined.

Auto igniting: Product is not selfigniting.

Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

Explosion limits:
Lower: 2.6 Vol %

Upper: 13 Vol %

Vapor pressure at 20 °C (68 °F): 245.3 hPa (184 mm Hg)

Density at 20 °C (68 °F): 0.80025 g/cm³ (6.67809 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:** 99.9 %
 - VOC content:** 0.00 %
 - 0.0 g/l / 0.00 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:**
ATE (Acute Toxicity Estimate)

Oral	LD50	79,114 mg/kg
Dermal	LD50	237,342 mg/kg
Inhalative	LC50/4 h	2,373 mg/L

67-64-1 acetone

Oral	LD50	5,800 mg/kg (rat)
Dermal	LD50	20,000 mg/kg (rabbit)

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

· **Carcinogenic categories**

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

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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· **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, IMDG, IATA** UN1993
- **UN proper shipping name**
- **DOT** Flammable liquids, n.o.s. (Acetone)
- **IMDG, IATA** FLAMMABLE LIQUID, N.O.S. (ACETONE)
- **Transport hazard class(es)**
- **DOT**
- 
- **Class** 3 Flammable liquids

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· Label	3
· IMDG, IATA	
	
· Class	3 Flammable liquids
· Label	3
· Packing group	
· DOT, IMDG, IATA	II
· Environmental hazards:	Not applicable.
· Special precautions for user	Warning: Flammable liquids
· Danger code (Kemler):	33
· EMS Number:	F-E, <u>S</u> -E
· Stowage Category	B
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1993 FLAMMABLE LIQUID, N.O.S. (ACETONE), 3, II

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):

None of the ingredients is listed.

TSCA (Toxic Substances Control Act):

67-64-1 acetone

ACTIVE

577-19-5 1-bromo-2-nitrobenzene

ACTIVE

Hazardous Air Pollutants

None of the ingredients is listed.

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· Proposition 65
· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories
· EPA (Environmental Protection Agency)

67-64-1 acetone

I

· TLV (Threshold Limit Value established by ACGIH)

67-64-1 acetone

A4

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

None of the ingredients is listed.

· 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 05/30/2019 / 1

· 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. 2: Flammable liquids – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· * Data compared to the previous version altered.