

**1 Identification**

- **Product identifier**
- **Product Name:** Volatile Calibration Standard
- **Part Number:** ECS-A-045XP
- **Application of the substance / the mixture** Certified Reference Material
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
SPEX CertiPrep, LLC.  
203 Norcross Ave, Metuchen,  
NJ 08840 USA
- **Information department:** product safety department
- **Emergency telephone number:**  
Emergency Phone Number (24 hours)  
CHEMTREC (800-424-9300)  
Outside US: 703-527-3887

**2 Hazard(s) identification**

- **Classification of the substance or mixture**



GHS02 Flame

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



GHS06 Skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.



GHS08 Health hazard

Carc. 1A H350 May cause cancer.

STOT SE 1 H370 Causes damage to organs.



GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Sens. 1 H317 May cause an allergic skin reaction.

- **Label elements**

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

- **Hazard pictograms**



GHS02



GHS05



GHS06



GHS07



GHS08

- **Signal word** Danger

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

methanol

2-methylpropan-1-ol

ethanol

methacrylonitrile

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**· Hazard statements***Highly flammable liquid and vapor.**Harmful if swallowed.**Toxic if inhaled.**Causes serious eye damage.**May cause an allergic skin reaction.**May cause cancer.**Causes damage to organs.***· Precautionary statements***Keep away from heat/sparks/open flames/hot surfaces. No smoking.**If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.**If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**Immediately call a POISON CENTER/doctor.**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:**

67-56-1	methanol	81.0%
123-91-1	1,4-dioxane	4.0%
64-17-5	ethanol	4.0%
78-83-1	2-methylpropan-1-ol	4.0%
75-05-8	acetonitrile	2.0%
126-98-7	methacrylonitrile	2.0%
107-12-0	propionitrile	2.0%
107-05-1	3-chloropropene	0.2%
97-63-2	ethyl methacrylate	0.2%
80-62-6	methyl methacrylate	0.2%

**· Chemical identification of the substance/preparation**

1476-11-5	cis-2,3-dichlorobut-2-ene	0.2%
110-57-6	trans-2,3-dichlorobut-2-ene	0.2%

**4 First-aid measures****· Description of first aid measures****· General information:***Immediately remove any clothing soiled by the product.**Remove breathing apparatus only after contaminated clothing have been completely removed.**In case of irregular breathing or respiratory arrest provide artificial respiration.***· After inhalation:***Supply fresh air or oxygen; call for doctor.**In case of unconsciousness place patient stably in side position for transportation.***· After skin contact:** *Immediately wash with water and soap and rinse thoroughly.*

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- **After eye contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Do not induce vomiting; immediately call for medical help.
- **Information for Doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **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:** Mouth respiratory protective device.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**  
Do not allow product to reach sewage system or any water course.  
Inform respective authorities in case of seepage into water course or sewage system.  
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.

### 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:**

**67-56-1 methanol**

PEL	Long-term value: 260 mg/m <sup>3</sup> , 200 ppm
REL	Short-term value: 325 mg/m <sup>3</sup> , 250 ppm
	Long-term value: 260 mg/m <sup>3</sup> , 200 ppm
	Skin

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TLV	Short-term value: 328 mg/m <sup>3</sup> , 250 ppm Long-term value: 262 mg/m <sup>3</sup> , 200 ppm Skin; BEI
<b>123-91-1 1,4-dioxane</b>	
PEL	Long-term value: 360 mg/m <sup>3</sup> , 100 ppm Skin
REL	Ceiling limit value: 3.6 mg/m <sup>3</sup> , 1 ppm *30-min; See Pocket Guide App. A
TLV	Long-term value: 72 mg/m <sup>3</sup> , 20 ppm Skin
<b>64-17-5 ethanol</b>	
PEL	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
REL	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
TLV	Short-term value: 1880 mg/m <sup>3</sup> , 1000 ppm
<b>78-83-1 2-methylpropan-1-ol</b>	
PEL	Long-term value: 300 mg/m <sup>3</sup> , 100 ppm
REL	Long-term value: 150 mg/m <sup>3</sup> , 50 ppm
TLV	Long-term value: 152 mg/m <sup>3</sup> , 50 ppm
<b>75-05-8 acetonitrile</b>	
PEL	Long-term value: 70 mg/m <sup>3</sup> , 40 ppm
REL	Long-term value: 34 mg/m <sup>3</sup> , 20 ppm
TLV	Long-term value: 34 mg/m <sup>3</sup> , 20 ppm Skin
<b>126-98-7 methacrylonitrile</b>	
REL	Long-term value: 3 mg/m <sup>3</sup> , 1 ppm Skin
TLV	Long-term value: 2.7 mg/m <sup>3</sup> , 1 ppm Skin
<b>107-12-0 propiononitrile</b>	
PEL	Long-term value: 5 mg/m <sup>3</sup> as CN; Skin
REL	Long-term value: 14 mg/m <sup>3</sup> , 6 ppm
<b>· Ingredients with biological limit values:</b>	
<b>67-56-1 methanol</b>	
BEI	15 mg/L Medium: urine Time: end of shift Parameter: Methanol (background, 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:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

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· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

## 9 Physical and chemical properties

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

· **General Information**

· **Appearance:**

· <b>Form:</b>	Liquid
· <b>Color:</b>	According to product specification
· <b>Odor:</b>	Characteristic
· <b>Odour Threshold:</b>	Not applicable.

· **pH-value:** Not applicable.

· **Change in condition**

· <b>Melting point/Melting range:</b>	Undetermined.
· <b>Boiling point/Boiling range:</b>	64 °C (147 °F)

· **Flash point:** 11 °C (52 °F)

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

· **Ignition temperature:** 455 °C (851 °F)

· **Decomposition temperature:** Not applicable.

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

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

· **Explosion limits:**

· <b>Lower:</b>	5.5 Vol %
· <b>Upper:</b>	44.0 Vol %

· **Vapor pressure at 20 °C (68 °F):** 128 hPa (96 mm Hg)

· **Density at 20 °C (68 °F)** 0.80252 g/cm<sup>3</sup> (6.697 lbs/gal)

· **Relative density** Not applicable.

· **Vapor density** Not applicable.

· **Evaporation rate** Not applicable.

· **Solubility in / Miscibility with**

· **Water:** Not miscible or difficult to mix.

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

· **Viscosity:**

· <b>Dynamic:</b>	Not applicable.
· <b>Kinematic:</b>	Not applicable.

· **Solvent content:**

· <b>Organic solvents:</b>	93.0 %
· <b>VOC content:</b>	93.0 %

· **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.

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· **Hazardous decomposition products:** No dangerous decomposition products known.**11 Toxicological information**· **Information on toxicological effects**· **Acute toxicity:**· **LD/LC50 values that are relevant for classification:****67-56-1 methanol**

Oral	LD50	5628 mg/kg (rat)
Dermal	LD50	15800 mg/kg (rabbit)

**123-91-1 1,4-dioxane**

Oral	LD50	5700 mg/kg (mouse)
Dermal	LD50	7600 mg/kg (rabbit)
Inhalative	LC50/4 h	46 mg/l (rat)

**126-98-7 methacrylonitrile**

Oral	LD50	120 mg/kg (rat)
Dermal	LD50	320 mg/kg (rabbit)

**107-12-0 propionitrile**

Oral	LD50	39 mg/kg (rat)
Dermal	LD50	210 mg/kg (rabbit)

· **Primary irritant effect:**· **on the skin:** No irritant effect.· **on the eye:** Irritating effect.· **Sensitization:** Sensitization possible through skin contact.· **Additional toxicological information:**

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

Toxic

Irritant

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

123-91-1	1,4-dioxane	2B
64-17-5	ethanol	1
107-05-1	3-chloropropene	3
80-62-6	methyl methacrylate	3
110-57-6	trans-2,3-dichlorobut-2-ene	3

· **NTP (National Toxicology Program)**

123-91-1	1,4-dioxane	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.

US

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**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**

· <b>UN-Number</b> · <b>DOT, ADR, IMDG, IATA</b>	UN1230
· <b>UN proper shipping name</b> · <b>DOT, IATA</b> · <b>ADR</b> · <b>IMDG</b>	Methanol 1230 Methanol METHANOL
· <b>Transport hazard class(es)</b> · <b>DOT</b>	
· <b>Class</b> · <b>Label</b>	3 Flammable liquids 3, 6.1
· <b>ADR</b>	
· <b>Class</b> · <b>Label</b>	3 Flammable liquids 3+6.1
· <b>IMDG</b>	
· <b>Class</b> · <b>Label</b>	3 Flammable liquids 3/6.1
· <b>IATA</b>	
· <b>Class</b> · <b>Label</b>	3 Flammable liquids 3 (6.1)
· <b>Packing group</b> · <b>DOT, ADR, IMDG, IATA</b>	II
· <b>Environmental hazards:</b>	Not applicable.
· <b>Special precautions for user</b> · <b>Danger code (Kemler):</b> · <b>EMS Number:</b> · <b>Stowage Category</b> · <b>Stowage Code</b>	Warning: Flammable liquids 336 F-E,S-D B SW2 Clear of living quarters.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.

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· **Transport/Additional information:**

· **ADR**

· **Excepted quantities (EQ)**

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

· **IMDG**

· **Limited quantities (LQ)**

· **Excepted quantities (EQ)**

1L

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":**

UN 1230 METHANOL, 3 (6.1), II

### 15 Regulatory information

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

· **Sara**

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

126-98-7	methacrylonitrile
107-12-0	propionitrile
110-57-6	trans-2,3-dichlorobut-2-ene

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

67-56-1	methanol
123-91-1	1,4-dioxane
75-05-8	acetonitrile
126-98-7	methacrylonitrile
107-05-1	3-chloropropene
80-62-6	methyl methacrylate
110-57-6	trans-2,3-dichlorobut-2-ene

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

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

123-91-1	1,4-dioxane
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· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

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

None of the ingredients is listed.

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

67-56-1	methanol
64-17-5	ethanol

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

123-91-1	1,4-dioxane	L
75-05-8	acetonitrile	CBD, D
107-05-1	3-chloropropene	C
80-62-6	methyl methacrylate	E, NL

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

123-91-1	1,4-dioxane	A3
64-17-5	ethanol	A3
75-05-8	acetonitrile	A4
107-05-1	3-chloropropene	A3
80-62-6	methyl methacrylate	A4

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

123-91-1	1,4-dioxane
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· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

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## · Hazard pictograms



GHS02

GHS05

GHS06

GHS07

GHS08

## · Signal word Danger

## · Hazard-determining components of labeling:

methanol

2-methylpropan-1-ol

ethanol

methacrylonitrile

## · Hazard statements

Highly flammable liquid and vapor.

Harmful if swallowed.

Toxic if inhaled.

Causes serious eye damage.

May cause an allergic skin reaction.

May cause cancer.

Causes damage to organs.

## · Precautionary statements

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

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

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

Immediately call a POISON CENTER/doctor.

Store locked up.

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

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

**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

## · Department issuing SDS: product safety department

## · Contact:

SPEX CertiPrep, LLC.

1-732-549-7144

## · Date of preparation / last revision 01/19/2016 / -

## · 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 &amp; Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEF: Biological Exposure Limit

Flam. Liq. 2: Flammable liquids, Hazard Category 2

Acute Tox. 4: Acute toxicity, Hazard Category 4

Acute Tox. 3: Acute toxicity, Hazard Category 3

Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1

Skin Sens. 1: Sensitisation - Skin, Hazard Category 1

Carc. 1A: Carcinogenicity, Hazard Category 1A

STOT SE 1: Specific target organ toxicity - Single exposure, Hazard Category 1