

1 Identification

- **Product identifier**
- **Product Name:** Volatile Calibration Standard
- **Part Number:** ECS-A-044
- **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. 2 H351 Suspected of causing cancer.

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

STOT SE 1 H370 Causes damage to organs.

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

- **Label elements**

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

- **Hazard pictograms**



GHS02



GHS06



GHS08

- **Signal word** Danger

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

methanol

carbon disulphide

iodomethane

- **Hazard statements**

H225 Highly flammable liquid and vapor.

H331 Toxic if inhaled.

H351 Suspected of causing cancer.

H361 Suspected of damaging fertility or the unborn child.

H370 Causes damage to organs.

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

- **Precautionary statements**

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

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

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

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*Do not breathe dust/fume/gas/mist/vapors/spray.**If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.**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	99.2%
74-88-4	iodomethane	0.2%
108-05-4	vinyl acetate	0.2%
75-15-0	carbon disulphide	0.2%

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

1634-04-4	Methyl-tert-butyl ether	0.2%
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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.**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.· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.· **After swallowing:***Do not induce vomiting; immediately call for medical help.**Do not give anything to eat or drink - Do not induce vomiting*· **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, sand, extinguishing powder. Do not use water.· **For safety reasons unsuitable extinguishing agents:** Water with full jet· **Special hazards arising from the substance or mixture** No further relevant information available.

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- **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.
Do not flush with water or aqueous cleansing agents
- **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:

67-56-1	methanol	530 ppm
74-88-4	iodomethane	25 ppm
1634-04-4	Methyl-tert-butyl ether	50 ppm
108-05-4	vinyl acetate	6.7 ppm
75-15-0	carbon disulphide	13 ppm

· PAC-2:

67-56-1	methanol	2,100 ppm
74-88-4	iodomethane	50 ppm
1634-04-4	Methyl-tert-butyl ether	570 ppm
108-05-4	vinyl acetate	36 ppm
75-15-0	carbon disulphide	160 ppm

· PAC-3:

67-56-1	methanol	7200* ppm
74-88-4	iodomethane	125 ppm
1634-04-4	Methyl-tert-butyl ether	5300* ppm
108-05-4	vinyl acetate	180 ppm
75-15-0	carbon disulphide	480 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.

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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/m³, 200 ppm

REL Short-term value: 325 mg/m³, 250 ppm
Long-term value: 260 mg/m³, 200 ppm
Skin

TLV Short-term value: 328 mg/m³, 250 ppm
Long-term value: 262 mg/m³, 200 ppm
Skin; BEI

74-88-4 iodomethane

PEL Long-term value: 28 mg/m³, 5 ppm
Skin

REL Long-term value: 10 mg/m³, 2 ppm
Skin; See Pocket Guide App. A

TLV Long-term value: 12 mg/m³, 2 ppm
Skin

108-05-4 vinyl acetate

REL Ceiling limit value: 15* mg/m³, 4* ppm
*15-min

TLV Short-term value: 53 mg/m³, 15 ppm
Long-term value: 35 mg/m³, 10 ppm

75-15-0 carbon disulphide

PEL Long-term value: 20 ppm
Ceiling limit value: 30; 100* ppm
*30-min peak per 8-hr shift

REL Short-term value: 30 mg/m³, 10 ppm
Long-term value: 3 mg/m³, 1 ppm
Skin

TLV Long-term value: 3.13 mg/m³, 1 ppm
Skin, BEI

- Ingredients with biological limit values:

67-56-1 methanol

BEI 15 mg/L
Medium: urine
Time: end of shift
Parameter: Methanol (background, nonspecific)

75-15-0 carbon disulphide

BEI 0.5 mg/g creatinine
Medium: urine
Time: end of shift
Parameter: 2-Thioxothiazolidine-4-carboxylic acid (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 and skin.

- Respiratory protection:

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

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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

- **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:**

Form:	Liquid
Color:	According to product specification
Odor:	Characteristic
Odour Threshold:	Not applicable.

- **pH-value:** Not applicable.

- **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	64.7 °C (148.5 °F)

- **Flash point:** < 23 °C (<73.4 °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:**

Lower:	5.5 Vol %
Upper:	44 Vol %

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

- **Density at 20 °C (68 °F)** 0.79411 g/cm³ (6.62685 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:**

Dynamic:	Not applicable.
Kinematic:	Not applicable.

- **Solvent content:**

Organic solvents:	99.4 %
VOC content:	99.40 %

- **Solids content:** 0.0 %

- **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.

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

11 Toxicological information

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

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

67-56-1 methanol

Oral	LD50	5,628 mg/kg (rat)
Dermal	LD50	15,800 mg/kg (rabbit)

75-15-0 carbon disulphide

Oral	LD50	3,188 mg/kg (rat)
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- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic

- **Carcinogenic categories**

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

74-88-4	iodomethane	3
1634-04-4	Methyl-tert-butyl ether	3
108-05-4	vinyl acetate	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.
- **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.

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14 Transport information

<ul style="list-style-type: none"> · UN-Number · DOT, ADR, IMDG, IATA 	<p align="center">UN1230</p>
<ul style="list-style-type: none"> · UN proper shipping name · DOT · ADR · IMDG, IATA 	<p align="center">Methanol 1230 Methanol METHANOL</p>
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT 	<div style="display: flex; justify-content: space-around; align-items: center;">   </div>
<ul style="list-style-type: none"> · Class · Label 	<p align="center">3 Flammable liquids 3, 6.1</p>
<ul style="list-style-type: none"> · ADR 	<div style="display: flex; justify-content: space-around; align-items: center;">   </div>
<ul style="list-style-type: none"> · Class · Label 	<p align="center">3 Flammable liquids 3+6.1</p>
<ul style="list-style-type: none"> · IMDG 	<div style="display: flex; justify-content: space-around; align-items: center;">   </div>
<ul style="list-style-type: none"> · Class · Label 	<p align="center">3 Flammable liquids 3/6.1</p>
<ul style="list-style-type: none"> · IATA 	<div style="display: flex; justify-content: space-around; align-items: center;">   </div>
<ul style="list-style-type: none"> · Class · Label 	<p align="center">3 Flammable liquids 3 (6.1)</p>
<ul style="list-style-type: none"> · Packing group · DOT, ADR, IMDG, IATA 	<p align="center">II</p>
<ul style="list-style-type: none"> · Environmental hazards: 	<p align="center">Not applicable.</p>
<ul style="list-style-type: none"> · Special precautions for user · Danger code (Kemler): · EMS Number: · Stowage Category · Stowage Code 	<p align="center">Warning: Flammable liquids 336 F-E,S-D B SW2 Clear of living quarters.</p>
<ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code 	<p align="center">Not applicable.</p>
<ul style="list-style-type: none"> · Transport/Additional information: 	
<ul style="list-style-type: none"> · ADR · Excepted quantities (EQ) 	<p align="center">Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml</p>
<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	<p align="center">1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml</p>

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· 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 313 (Specific toxic chemical listings):

All ingredients are listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

· Chemicals known to cause cancer:

74-88-4 iodomethane

· Chemicals known to cause reproductive toxicity for females:

75-15-0 carbon disulphide

· Chemicals known to cause reproductive toxicity for males:

75-15-0 carbon disulphide

· Chemicals known to cause developmental toxicity:

67-56-1 methanol

75-15-0 carbon disulphide

· Carcinogenic categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

1634-04-4 Methyl-tert-butyl ether

A3

108-05-4 vinyl acetate

A3

75-15-0 carbon disulphide

A4

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

74-88-4 iodomethane

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

· Hazard pictograms



GHS02



GHS06



GHS08

· Signal word Danger

· Hazard-determining components of labeling:

methanol

carbon disulphide

iodomethane

· Hazard statements

H225 Highly flammable liquid and vapor.

H331 Toxic if inhaled.

H351 Suspected of causing cancer.

H361 Suspected of damaging fertility or the unborn child.

H370 Causes damage to organs.

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

· Precautionary statements

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

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

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

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

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

Store locked up.

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

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· **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** 11/13/2018 / -

· **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)

LCS0: 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

Acute Tox. 3: Acute toxicity – Category 3

Carc. 2: Carcinogenicity – Category 2

Repr. 2: Reproductive toxicity – Category 2

STOT SE 1: Specific target organ toxicity (single exposure) – Category 1

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