

1 Identification

- **Product identifier**
- **Product Name: Volatile Gases Mix**
- **Part Number: ECS-A-053**
- **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.

- **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

vinyl chloride

bromomethane

- **Hazard statements**

H225 Highly flammable liquid and vapor.

H331 Toxic if inhaled.

H350 May cause cancer.

H370 Causes damage to organs.

- **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.

(Contd. on page 2)

Product Name: Volatile Gases Mix

(Contd. of page 1)

- 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	98.8%
75-00-3	chloroethane	0.2%
74-87-3	chloromethane	0.2%
75-01-4	vinyl chloride	0.2%

· Chemical identification of the substance/preparation

75-71-8	dichlorodifluoromethane	0.2%
75-69-4	trichlorofluoromethane	0.2%
74-83-9	bromomethane	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.
- 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.
- Advice for firefighters
- Protective equipment: Mouth respiratory protective device.

US

(Contd. on page 3)

Product Name: Volatile Gases Mix

(Contd. of page 2)

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
75-00-3	chloroethane	300 ppm
74-87-3	chloromethane	150 ppm
75-71-8	dichlorodifluoromethane	3,000 ppm
75-69-4	trichlorofluoromethane	91 ppm
75-01-4	vinyl chloride	250 ppm
74-83-9	bromomethane	19 ppm
· PAC-2:		
67-56-1	methanol	2,100 ppm
75-00-3	chloroethane	5100* ppm
74-87-3	chloromethane	910 ppm
75-71-8	dichlorodifluoromethane	10,000 ppm
75-69-4	trichlorofluoromethane	1,000 ppm
75-01-4	vinyl chloride	1,200 ppm
74-83-9	bromomethane	210 ppm
· PAC-3:		
67-56-1	methanol	7200* ppm
75-00-3	chloroethane	20000** ppm
74-87-3	chloromethane	3,000 ppm
75-71-8	dichlorodifluoromethane	50,000 ppm
75-69-4	trichlorofluoromethane	10,000 ppm
75-01-4	vinyl chloride	4800* ppm
74-83-9	bromomethane	740 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.

(Contd. on page 4)

Product Name: Volatile Gases Mix

(Contd. of page 3)

· **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/m³, 200 ppmREL Short-term value: 325 mg/m³, 250 ppm
Long-term value: 260 mg/m³, 200 ppm
SkinTLV Short-term value: 328 mg/m³, 250 ppm
Long-term value: 262 mg/m³, 200 ppm
Skin; BEI**75-00-3 chloroethane**PEL Long-term value: 2600 mg/m³, 1000 ppm

REL Handle with caution; See Pocket Guide App. C

TLV Long-term value: 264 mg/m³, 100 ppm
Skin**74-87-3 chloromethane**PEL Long-term value: 100 ppm
Ceiling limit value: 200; 300* ppm
*5-min peak in any 3 hrs

REL See Pocket Guide App. A

TLV Short-term value: 207 mg/m³, 100 ppm
Long-term value: 103 mg/m³, 50 ppm
Skin**75-01-4 vinyl chloride**

PEL Short-term value: 5* ppm

Long-term value: 1 ppm

*Avg. not exceeding any 15 min; see 29CFR1910.1017

REL See Pocket Guide App.A

TLV Long-term value: 2.6 mg/m³, 1 ppm· **Ingredients with biological limit values:****67-56-1 methanol**

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 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

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

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 11/08/2018

Reviewed on 11/08/2018

Product Name: Volatile Gases Mix

(Contd. of page 4)

· **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)** 0.78237 g/cm³ (6.52888 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:	99.0 %
· VOC content:	98.80 %

· **Solids content:** 0.0 %

· **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.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 11/08/2018

Reviewed on 11/08/2018

Product Name: Volatile Gases Mix

(Contd. of page 5)

- **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)

75-69-4 trichlorofluoromethane

Oral	LD50	>15,000 mg/kg (rat)
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75-01-4 vinyl chloride

Oral	LD50	500 mg/kg (rat)
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74-83-9 bromomethane

Oral	LD50	214 mg/kg (rat)
Inhalative	LC50/4 h	302 mg/l (rat)

- **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.

- **Carcinogenic categories**

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

75-00-3	chloroethane	3
74-87-3	chloromethane	3
75-01-4	vinyl chloride	1
74-83-9	bromomethane	3

- **NTP (National Toxicology Program)**

75-01-4	vinyl chloride	K
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- **OSHA-Ca (Occupational Safety & Health Administration)**

75-01-4	vinyl chloride
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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.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 11/08/2018

Reviewed on 11/08/2018

Product Name: Volatile Gases Mix

(Contd. of page 6)

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

14 Transport information

- **UN-Number**

- **DOT, ADR, IMDG, IATA**

UN1230

- **UN proper shipping name**

- **DOT**

Methanol

- **ADR**

1230 Methanol

- **IMDG, IATA**

METHANOL

- **Transport hazard class(es)**

- **DOT**



- **Class**

3 Flammable liquids

- **Label**

3, 6.1

- **ADR**



- **Class**

3 Flammable liquids

- **Label**

3+6.1

- **IMDG**



- **Class**

3 Flammable liquids

- **Label**

3/6.1

- **IATA**



- **Class**

3 Flammable liquids

- **Label**

3 (6.1)

- **Packing group**

- **DOT, ADR, IMDG, IATA**

II

- **Environmental hazards:**

Not applicable.

- **Special precautions for user**

Warning: Flammable liquids

- **Danger code (Kemler):**

336

- **EMS Number:**

F-E,S-D

- **Stowage Category**

B

- **Stowage Code**

SW2 Clear of living quarters.

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

- **Code**

Not applicable.

- **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

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 11/08/2018

Reviewed on 11/08/2018

Product Name: Volatile Gases Mix

(Contd. of page 7)

- **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 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:**

75-00-3 chloroethane

75-01-4 vinyl chloride

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

None of the ingredients is listed.

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

74-87-3 chloromethane

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

67-56-1 methanol

74-87-3 chloromethane

74-83-9 bromomethane

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

74-87-3 chloromethane

D, CBD

75-01-4 vinyl chloride

A, K/L

74-83-9 bromomethane

D

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

75-00-3 chloroethane

A3

74-87-3 chloromethane

A4

75-71-8 dichlorodifluoromethane

A4

75-69-4 trichlorofluoromethane

A4

75-01-4 vinyl chloride

A1

74-83-9 bromomethane

A4

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

74-87-3 chloromethane

75-01-4 vinyl chloride

74-83-9 bromomethane

- **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

vinyl chloride

bromomethane

(Contd. on page 9)

US

Safety Data Sheet
acc. to OSHA HCS

Printing date 11/08/2018

Reviewed on 11/08/2018

Product Name: Volatile Gases Mix

(Contd. of page 8)

· **Hazard statements**

H225 Highly flammable liquid and vapor.

H331 Toxic if inhaled.

H350 May cause cancer.

H370 Causes damage to organs.

· **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.

· **National regulations:**

· **Information about limitation of use:**

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

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

16 Other information

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** 11/08/2018 / -

· **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)

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

Acute Tox. 3: Acute toxicity – Category 3

Carc. 1A: Carcinogenicity – Category 1A

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