Safety Data Sheet
acc. to OSHA HCS

Printing date 11/20/2018 *Reviewed on 11/20/2018*

1 Identification

· **Product identifier**

· **Product Name: Stock VO**

· **Part Number:** USP-RS-C1
· **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.

GHS08 Health hazard

Muta. 1B H340 May cause genetic defects.
Carc. 1A H350 May cause cancer.
STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.

GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.

· **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:**
1,2-dichloroethane
benzene
carbon tetrachloride
1,1-dichloroethylene
· **Hazard statements**
H225 Highly flammable liquid and vapor.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H340 May cause genetic defects.
H350 May cause cancer.
H372 Causes 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.

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Use explosion-proof electrical/ventilating/lighting/equipment.
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.
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:**		
67-68-5	dimethyl sulfoxide	85.5%
71-55-6	1,1,1-trichloroethane	5.0%
75-35-4	1,1-dichloroethylene	4.0%
107-06-2	1,2-dichloroethane	2.5%
56-23-5	carbon tetrachloride	2.0%
71-43-2	benzene	1.0%

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. If symptoms persist, 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 vomitting
· **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:***		
67-68-5	dimethyl sulfoxide	150 ppm
71-55-6	1,1,1-trichloroethane	230 ppm
75-35-4	1,1-dichloroethylene	45 ppm
107-06-2	1,2-dichloroethane	50 ppm
56-23-5	carbon tetrachloride	1.2 ppm
71-43-2	benzene	52 ppm

· ***PAC-2:***		
67-68-5	dimethyl sulfoxide	290 ppm
71-55-6	1,1,1-trichloroethane	600 ppm
75-35-4	1,1-dichloroethylene	500 ppm
107-06-2	1,2-dichloroethane	200 ppm
56-23-5	carbon tetrachloride	13 ppm
71-43-2	benzene	800 ppm

· ***PAC-3:***		
67-68-5	dimethyl sulfoxide	1,800 ppm
71-55-6	1,1,1-trichloroethane	4,200 ppm
75-35-4	1,1-dichloroethylene	1,000 ppm
107-06-2	1,2-dichloroethane	300 ppm
56-23-5	carbon tetrachloride	340 ppm
71-43-2	benzene	4000* 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.

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· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
67-68-5 dimethyl sulfoxide	
WEEL	Long-term value: 250 ppm
71-55-6 1,1,1-trichloroethane	
PEL	Long-term value: 1900 mg/m³, 350 ppm
REL	Ceiling limit value: 1900* mg/m³, 350* ppm *15-min; See Pocket Guide App. C
TLV	Short-term value: 2460 mg/m³, 450 ppm Long-term value: 1910 mg/m³, 350 ppm BEI
75-35-4 1,1-dichloroethylene	
REL	See Pocket Guide App.A
TLV	Long-term value: 20 mg/m³, 5 ppm
107-06-2 1,2-dichloroethane	
PEL	Long-term value: 50 ppm Ceiling limit value: 100; 200* ppm *5-min peak in any 3 hrs
REL	Short-term value: 8 mg/m³, 2 ppm Long-term value: 4 mg/m³, 1 ppm See Pocket Guide Apps. A and C
TLV	Long-term value: 40 mg/m³, 10 ppm
56-23-5 carbon tetrachloride	
PEL	Long-term value: 10 ppm Ceiling limit value: 25; 200* ppm *5-min peak in any 4 hrs
REL	Short-term value: 12.6* mg/m³, 2* ppm *60-min;See Pocket Guide App. A
TLV	Short-term value: 63 mg/m³, 10 ppm Long-term value: 31 mg/m³, 5 ppm Skin
71-43-2 benzene	
PEL	Short-term value: 15* mg/m³, 5* ppm Long-term value: 3* mg/m³, 1* ppm *table Z-2 for exclusions in 29CFR1910.1028(d)
REL	Short-term value: 1 ppm Long-term value: 0.1 ppm See Pocket Guide App. A
TLV	Short-term value: 8 mg/m³, 2.5 ppm Long-term value: 1.6 mg/m³, 0.5 ppm Skin; BEI

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· **Ingredients with biological limit values:**

71-55-6 1,1,1-trichloroethane	
BEI	40 ppm Medium: end-exhaled air Time: prior to last shift of workweek Parameter: Methyl chloroform 10 mg/L Medium: urine Time: end of workweek Parameter: Trichloroacetic acid (nonspecific, semi-quantitative) 30 mg/L Medium: urine Time: end of shift at end of workweek Parameter: Total trichloroethanol (nonspecific, semi-quantitative) 1 mg/L Medium: blood Time: end of shift at end of workweek Parameter: Total trichloroethanol (nonspecific)
71-43-2 benzene	
BEI	25 µg/g creatinine Medium: urine Time: end of shift Parameter Parameter: S-Phenylmercapturic acid (background 500 µg/g creatinine Medium: urine Time: end of shift Parameter: t,t-Muconic acid (background)

· **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
· **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

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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:	74 °C (165.2 °F)
· **Flash point:**	< 23 °C (<73.4 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	270 °C (518 °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:	1.8 Vol %
Upper:	63 Vol %
· **Vapor pressure at 20 °C (68 °F):**	2.5 hPa (1.9 mm Hg)
· **Density at 20 °C (68 °F)**	1.12804 g/cm³ (9.41349 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:	93.5 %
VOC content:	88.50 %
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.
· **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:**		
67-68-5 dimethyl sulfoxide		
Oral	LD50	14,500 mg/kg (rat)
71-55-6 1,1,1-trichloroethane		
Oral	LD50	10,300 mg/kg (rat)

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75-35-4 1,1-dichloroethylene		
Inhalative	LC50/4 h	6,350 mg/l (mouse)
107-06-2 1,2-dichloroethane		
Oral	LD50	670 mg/kg (rat)
Dermal	LD50	2,800 mg/kg (rat)
56-23-5 carbon tetrachloride		
Oral	LD50	2,350 mg/kg (rat)
Dermal	LD50	5,070 mg/kg (rat)
71-43-2 benzene		
Oral	LD50	4,894 mg/kg (rat)
Dermal	LD50	48 mg/kg (mouse)
Inhalative	LC50/4 h	9,980 mg/l (mouse)

· **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:
Toxic
Irritant
Carcinogenic.
The product can cause inheritable damage.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
71-55-6	1,1,1-trichloroethane	3
75-35-4	1,1-dichloroethylene	3
107-06-2	1,2-dichloroethane	2B
56-23-5	carbon tetrachloride	2B
71-43-2	benzene	1

· **NTP (National Toxicology Program)**		
107-06-2	1,2-dichloroethane	R
56-23-5	carbon tetrachloride	R
71-43-2	benzene	K

· **OSHA-Ca (Occupational Safety & Health Administration)**	
71-43-2	benzene

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 3 (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely 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

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN1993
· **UN proper shipping name**	
· **DOT**	Flammable liquids, n.o.s. (Vinylidene chloride, stabilized, Ethylene dichloride)
· **ADR**	1993 Flammable liquids, n.o.s. (Vinylidene chloride, stabilized, Ethylene dichloride)
· **IMDG, IATA**	FLAMMABLE LIQUID, N.O.S. (VINYLIDENE CHLORIDE, STABILIZED, ETHYLENE DICHLORIDE)
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	3 Flammable liquids
· **Label**	3
· **ADR, IMDG, IATA**	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-E
· **Segregation groups**	Liquid halogenated hydrocarbons
· **Stowage Category**	B
· **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
· **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 LIQUIDS, N.O.S. (VINYLIDENE CHLORIDE, STABILIZED, ETHYLENE DICHLORIDE), 3, II

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15 Regulatory information

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

· **Section 313 (Specific toxic chemical listings):**	
71-55-6	1,1,1-trichloroethane
75-35-4	1,1-dichloroethylene
107-06-2	1,2-dichloroethane
56-23-5	carbon tetrachloride
71-43-2	benzene

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**	
75-35-4	1,1-dichloroethylene
107-06-2	1,2-dichloroethane
56-23-5	carbon tetrachloride
71-43-2	benzene

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**	
71-43-2	benzene

· **Chemicals known to cause developmental toxicity:**	
71-43-2	benzene

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**		
71-55-6	1,1,1-trichloroethane	II
75-35-4	1,1-dichloroethylene	C, S (inh.), I (oral)
107-06-2	1,2-dichloroethane	B2
56-23-5	carbon tetrachloride	L
71-43-2	benzene	A, K/L

· **TLV (Threshold Limit Value established by ACGIH)**		
71-55-6	1,1,1-trichloroethane	A4
75-35-4	1,1-dichloroethylene	A4
107-06-2	1,2-dichloroethane	A4
56-23-5	carbon tetrachloride	A2
71-43-2	benzene	A1

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**	
75-35-4	1,1-dichloroethylene
107-06-2	1,2-dichloroethane
56-23-5	carbon tetrachloride
71-43-2	benzene

· **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:**
1,2-dichloroethane
benzene
carbon tetrachloride
1,1-dichloroethylene
· **Hazard statements**
H225 Highly flammable liquid and vapor.

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H315 Causes skin irritation.
H319 Causes serious eye irritation.
H340 May cause genetic defects.
H350 May cause cancer.
H372 Causes 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.
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.
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** 11/20/2018 / -
· **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
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Muta. 1B: Germ cell mutagenicity – Category 1B
Carc. 1A: Carcinogenicity – Category 1A
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1