

### 1. IDENTIFICATION

**Catalog Number / Product Name:** 30009 / VOA Calibration Mix #4  
**Company:** Restek Corporation  
**Address:** 110 Benner Circle  
Bellefonte, Pa. 16823  
**Phone#:** 814-353-1300  
**Fax#:** 814-353-1309  
**Emergency#:** 800-424-9300 (CHEMTREC)  
703-527-3887 (Outside the US)  
**Email:** www.restek.com  
**Revision Number:** 7  
**Intended use:** For Laboratory use only

### 2. HAZARD(S) IDENTIFICATION

#### Emergency Overview:

GHS Hazard Symbols:



**GHS Classification:** Skin Sensitisation Category 1  
Carcinogenicity Category 1B  
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1  
Hazardous for the ozone layer  
Flammable Liquid Category 2  
Acute Toxicity - Dermal Category 3  
Acute Toxicity - Oral Category 3

**GHS Signal Word:** Danger

**GHS Hazard:** Highly flammable liquid and vapour.  
Toxic if swallowed or in contact with skin.  
May cause an allergic skin reaction.  
May cause cancer.  
Causes damage to organs.  
Harms public health and the environment by destroying ozone in the upper atmosphere.

**GHS Precautions:**

**Safety Precautions:** 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.  
Keep container tightly closed.  
Ground/bond container and receiving equipment.  
Use explosion-proof electrical/ventilation and lighting equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Do not breathe dust/fume/gas/mist/vapours/spray.  
Wash hands and skin thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Contaminated work clothing should not be allowed out of the workplace.  
Wear protective gloves/protective clothing/eye protection/face protection.

**First Aid Measures:** IF SWALLOWED: Immediately call a POISON CENTER/doctor/....  
IF ON SKIN: Wash with plenty of soap and water.  
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF exposed: Call a POISON CENTER or doctor/physician.  
 IF exposed or concerned: Get medical advice/attention.  
 Call a POISON CENTER or doctor/physician if you feel unwell.  
 Specific treatment see section 4.  
 Rinse mouth.  
 If skin irritation or rash occurs: Get medical advice/attention.  
 Take off immediately all contaminated clothing and wash it before reuse.  
 Wash contaminated clothing before reuse.  
 In case of fire: Use extinguishing media in section 5 for extinction.

**Storage:** Store in a well-ventilated place. Keep cool.  
 Store locked up.

**Disposal:** Dispose of contents/container according to section 13 of the SDS.  
 Refer to manufacturer/supplier for information on recovery/recycling.

**Single Exposure Target Organs:** No data available.

**Repeated Exposure Target Organs:** No data available.

### 3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	97.600000
trans-1,2-dichloroethylene	156-60-5	205-860-2	0.200000
bromodichloromethane	75-27-4	200-856-7	0.200000
bromoform	75-25-2	200-854-6	0.200000
Tetrachloroethylene	127-18-4	204-825-9	0.200000
1,2-dichloroethane	107-06-2	203-458-1	0.200000
Styrene	100-42-5	202-851-5	0.200000
trans-1,3-Dichloropropylene	10061-02-6		0.200000
cis-1,2-dichloroethylene	156-59-2	205-859-7	0.200000
cis-1,3-Dichloropropene	10061-01-5	233-195-8	0.200000
1,1,2,2-tetrachloroethane	79-34-5	201-197-8	0.200000
1,1,1-Trichloroethane	71-55-6	200-756-3	0.200000
chlorodibromomethane	124-48-1	204-704-0	0.200000

### 4. FIRST-AID MEASURES

**Inhalation:** Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

**Eyes:** Immediately flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention and monitor the eye daily as advised by your physician.

**Skin Contact:** Wash with soap and water. Remove contaminated clothing, launder immediately, and discard contaminated leather goods. Get medical attention immediately.

**Ingestion:** Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

### 5. FIRE- FIGHTING MEASURES

**Extinguishing Media:** Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used to extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

**Fire and/or Explosion Hazards:** Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

**Fire Fighting Methods and Protection:** Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products.

**Hazardous Combustion Products:** Carbon dioxide, Carbon monoxide

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions and Equipment:** Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

**Methods for Clean-up:** Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

## 7. HANDLING AND STORAGE

**Handling Technical Measures and Precautions:** Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment

**Storage Technical Measures and Conditions:** Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m <sup>3</sup> TWA
trans-1,2-dichloroethylene	156-60-5	ND		200 ppm TWA	No data available.
bromodichloromethane	75-27-4	ND		No TLV	No data available.
bromoform	75-25-2	ND		0.5 ppm TWA	0.5 ppm TWA; 5 mg/m <sup>3</sup> TWA
Tetrachloroethylene	127-18-4	150 ppm IDLH	100 ppm STEL 100 ppm STEL; 685 mg/m <sup>3</sup> STEL	25 ppm TWA 25 ppm TWA; 170 mg/m <sup>3</sup> TWA	100 ppm TWA; C 200 ppm
1,2-dichloroethane	107-06-2	50 ppm IDLH		10 ppm TWA	50 ppm TWA
Styrene	100-42-5	700 ppm IDLH	40 ppm STEL 40 ppm STEL; 170 mg/m <sup>3</sup> STEL	20 ppm TWA 20 ppm TWA; 85 mg/m <sup>3</sup> TWA	100 ppm TWA; C 200 ppm
trans-1,3-Dichloropropylene	10061-02-6	ND		No TLV	No data available.
cis-1,2-dichloroethylene	156-59-2	ND		200 ppm TWA	No data available.
cis-1,3-Dichloropropene	10061-01-5	ND		No TLV	No data available.
1,1,2,2-tetrachloroethane	79-34-5	ND		1 ppm TWA	5 ppm TWA; 35 mg/m <sup>3</sup> TWA
1,1,1-Trichloroethane	71-55-6	ND	450 ppm STEL 450 ppm STEL; 2460 mg/m <sup>3</sup> STEL	350 ppm TWA 350 ppm TWA; 1910 mg/m <sup>3</sup> TWA	350 ppm TWA; 1900 mg/m <sup>3</sup> TWA

**Personal Protection:**

**Engineering Measures:**

Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure.

**Respiratory Protection:**

Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms. If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.

**Eye Protection:**

Wear chemically resistant safety glasses with side shields when handling this product. Wear additional eye protection such as chemical splash goggles and/or face shield when the possibility exists for eye contact with splashing or spraying liquid, or airborne material. Do not wear contact lenses. Have an eye wash station available.

**Skin Protection:**

Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

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<b>Appearance, color:</b>	No data available.
<b>Odor:</b>	Mild
<b>Physical State:</b>	No data available.
<b>pH:</b>	No data available.
<b>Vapor Pressure:</b>	No data available.
<b>Vapor Density:</b>	1.1 (air = 1)
<b>Boiling Point:</b>	No data available.
<b>Melting Point:</b>	-98 °C
<b>Flash Point:</b>	52
<b>Flammability:</b>	Highly Flammable
<b>Upper Flammable/Explosive Limit, % in air:</b>	36
<b>Lower Flammable/Explosive Limit, % in air:</b>	6
<b>Autoignition Temperature:</b>	464 deg C
<b>Decomposition Temperature:</b>	No data available.
<b>Specific Gravity:</b>	0.791 - 0.792 g/cm3 at 20 °C
<b>Evaporation Rate:</b>	No data available.
<b>Odor Threshold:</b>	No data available.
<b>Solubility:</b>	Moderate; 50-99%
<b>Partition Coefficient: n-octanol in water:</b>	No data available.
<b>VOC % by weight:</b>	97.6
<b>Molecular Weight:</b>	32.04

**10. STABILITY AND REACTIVITY**

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<b>Stability:</b>	Stable under normal conditions.
<b>Conditions to Avoid:</b>	No data available.
<b>Materials to Avoid / Chemical Incompatibility:</b>	Strong oxidizing agents Strong acids
<b>Hazardous Decomposition Products:</b>	Carbon dioxide Carbon monoxide

**11. TOXICOLOGICAL INFORMATION**

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<b>Routes of Entry:</b>	Inhalation, Skin Contact, Eye Contact, Ingestion
<b>Target Organs Potentially Affected By Exposure:</b>	Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract
<b>Chemical Interactions That Change Toxicity:</b>	None Known

**Immediate (Acute) Health Effects by Route of Exposure:**

<b>Inhalation Irritation:</b>	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
<b>Inhalation Toxicity:</b>	Harmful! Can cause systemic damage (see "Target Organs")Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.
<b>Skin Contact:</b>	Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.

**Eye Contact:** Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.

**Ingestion Irritation:** Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea. Highly toxic and may be fatal if swallowed.

**Ingestion Toxicity:** Toxic if swallowed. May cause target organ failure and/or death. May be fatal if swallowed.

**Long-Term (Chronic) Health Effects:**

**Carcinogenicity:** Contains a probable or known human carcinogen.

**Reproductive and Developmental Toxicity:** Contains a known human reproductive and/or developmental hazard.

**Inhalation:** Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache. Toxic! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs").

**Skin Contact:** Upon prolonged or repeated contact can cause severe irritation, defatting, and dermatitis. May cause lingering effects but not likely to result in permanent damage if the exposure is eliminated.

**Skin Absorption:** Upon prolonged or repeated exposure, no hazard in normal industrial use.

**Ingestion:** Toxic if swallowed. May cause target organ failure and/or death.

**Component Toxicological Data:**

**NIOSH:**

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h
Dichlorobromomethane	75-27-4	Oral LD50 Rat 430 mg/kg
Ethylene, tetrachloro-	127-18-4	Inhalation LC50 Rat : 34200 mg/m3/8H; Inhalation LC50 Mouse : 5200 ppm/4H; Oral LD50 Rat : 2629 mg/kg; Oral LD50 Mouse : 8100 mg/kg
Ethane, 1,2-dichloro-	107-06-2	Dermal LD50 Rabbit 4890 mg/kg
Styrene	100-42-5	Inhalation LC50 Rat : 12 gm/m3/4H; Inhalation LC50 Mouse : 9500 mg/m3/4H; Oral LD50 Rat : 2650 mg/kg; Oral LD50 Mouse : 316 mg/kg

**Component Carcinogenic Data:**

**OSHA:**

Chemical Name	CAS No.	
Bromodichloromethane	75-27-4	Present
Tetrachloroethylene	127-18-4	Present
1,2-Dichloroethane	107-06-2	Present
Styrene	100-42-5	Present

**ACGIH:**

Chemical Name	CAS No.	
Tetrachloroethylene	127-18-4	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans A3-animal carcinogen
Ethylene dichloride	107-06-2	A4 - Not Classifiable as a Human Carcinogen
Styrene, monomer	100-42-5	A4 - Not Classifiable as a Human Carcinogen

**NIOSH:**

Chemical Name	CAS No.	
Tetrachloroethylene	127-18-4	potential occupational carcinogen
Ethylene dichloride	107-06-2	potential occupational carcinogen

**NTP:**

Chemical Name	CAS No.
No data available.	

**IARC:**

Chemical Name	CAS No.	Group No.
No data.		Group 1

Monograph 63; 1995	127-18-4	Group 2A
Bromodichloromethane	75-27-4	Group 2B
1,2-Dichloroethane	107-06-2	Group 2B
Styrene	100-42-5	Group 2B
Monograph 60; 1994 (Overall evaluation upgraded from 3 to 2B with supporting evidence from other data relevant to the evaluation of carcinogenicity and its mechanisms)		
1,1,2,2-Tetrachloroethane	79-34-5	Group 2B

## 12. ECOLOGICAL INFORMATION

<b>Overview:</b>	Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.
<b>Mobility:</b>	No data
<b>Persistence:</b>	No data
<b>Bioaccumulation:</b>	No data
<b>Degradability:</b>	Biodegrades slowly.
<b>Ecological Toxicity Data:</b>	No data available.

## 13. DISPOSAL CONSIDERATIONS

<b>Waste Description of Spent Product:</b>	Spent or discarded material is a hazardous waste.
<b>Disposal Methods:</b>	Dispose of by incineration following Federal, State, Local, or Provincial regulations.
<b>Waste Disposal of Packaging:</b>	Comply with all Local, State, Federal, and Provincial Environmental Regulations.

## 14. TRANSPORTATION INFORMATION

<b>United States:</b>	
<b>DOT Proper Shipping Name:</b>	Flammable liquids, toxic, n.o.s. (Methanol, Tetrachloroethylene)
<b>UN Number:</b>	UN1992
<b>Hazard Class:</b>	3(6.1)
<b>Packing Group:</b>	II
<b>International:</b>	
<b>IATA Proper Shipping Name:</b>	Flammable liquids, toxic, n.o.s. (Methanol, Tetrachloroethylene)
<b>UN Number:</b>	UN1992
<b>Hazard Class:</b>	3(6.1)
<b>Packing Group:</b>	II

**Marine Pollutant:** No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available.			

## 15. REGULATORY INFORMATION

<b>United States:</b>					
Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X
trans-1,2-dichloroethylene	156-60-5	X	-	-	X
bromodichloromethane	75-27-4	X	X	-	X
bromoform	75-25-2	X	X	-	X
Tetrachloroethylene	127-18-4	X	X	-	X
1,2-dichloroethane	107-06-2	X	X	-	X
Styrene	100-42-5	X	X	-	X
trans-1,3-Dichloropropylene	10061-02-6	-	X	-	X
cis-1,2-dichloroethylene	156-59-2	X	-	-	X

cis-1,3-Dichloropropene	10061-01-5	-	-	-	-
1,1,2,2-tetrachloroethane	79-34-5	X	X	-	X
1,1,1-Trichloroethane	71-55-6	X	X	-	X
chlorodibromomethane	124-48-1	X	-	-	X

**The following chemicals are listed on CA Prop 65:**

Chemical Name	CAS #	Regulation
Bromodichloromethane	75-27-4	Prop 65 Cancer
Bromoform	75-25-2	Prop 65 Cancer
Tetrachloroethylene Tetrachloroethylene (Perchloroethylene)	127-18-4	Prop 65 Cancer
Ethylene dichloride	107-06-2	Prop 65 Cancer
Styrene	100-42-5	Prop 65 Cancer
1,1,2,2-Tetrachloroethane	79-34-5	Prop 65 Cancer
Methanol	67-56-1	Prop 65 Develop Tox

**State Right To Know Listing:**

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
trans-1,2-dichloroethylene	156-60-5	-	X	X	X
bromodichloromethane	75-27-4	X	X	X	X
bromoform	75-25-2	X	X	X	X
Tetrachloroethylene	127-18-4	X	X	X	X
1,2-dichloroethane	107-06-2	X	X	X	X
Styrene	100-42-5	X	X	X	X
trans-1,3-Dichloropropylene	10061-02-6	X	X	-	-
cis-1,2-dichloroethylene	156-59-2	-	X	X	-
cis-1,3-Dichloropropene	10061-01-5	-	X	-	-
1,1,2,2-tetrachloroethane	79-34-5	X	X	X	X
1,1,1-Trichloroethane	71-55-6	X	X	X	X
chlorodibromomethane	124-48-1	X	X	X	X

**16. OTHER INFORMATION**

**Prior Version Date:** 04/09/14

**Other Information:** Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.

**References:** No data available.

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