

Issue Date June 2013

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Version 2

## 1. PRODUCT AND COMPANY IDENTIFICATION

### Product Identifier

**Product Name** V-Cide® Chemical Vapor Sterilant Solution

### Other Means of Identification

**SDS #** VC338/SDS/02

**UN/ID No.** UN1993

**Product Code** VC338

### Recommended Use of the Chemical and Restrictions on Use

**Recommended Use** Chemical sterilant.

### Details of the Supplier of the Safety Data Sheet

**Supplier Address** Certol International, LLC.  
6120 East 58th Avenue  
Commerce City, Colorado 80022  
[www.Certol.com](http://www.Certol.com)

### Emergency Telephone Number

**Company Phone Number(s)**  
Phone: 303-799-9401  
Toll-Free: 1-800-843-3343  
Fax: 303-799-9408

### **24 Hour Emergency Telephone**

INFOTRAC: 1-800-535-5053 (North America)  
INFOTRAC: 1-352-323-3500 (International)

## 2. HAZARDS IDENTIFICATION

### Classification

Acute toxicity - Oral	Category 4
Acute toxicity - Dermal	Category 4
Acute toxicity - Inhalation (Dusts/Mists/Vapors)	Category 4
Serious eye damage/eye irritation	Category 1
Skin sensitization	Category 1
Carcinogenicity	Category 1A
Specific target organ toxicity (single exposure)	Category 1
Specific target organ toxicity (repeated exposure)	Category 1
Flammable Liquids	Category 2

### Signal Word

Danger / Poison.

### Hazard Statements

Harmful if swallowed.  
Harmful to skin if contact is prolonged.  
Harmful if inhaled.  
Can cause severe eye irritation.  
May cause an allergic skin reaction.  
May cause cancer (per California Prop 65).  
Causes damage to organs through prolonged or repeated exposure.  
Highly flammable liquid and vapor.

### Appearance

Clear Liquid.

### Physical State

Liquid.

### Odor

Alcohol.



### Precautionary Statements-Prevention

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Use personal protective equipment as required.  
Wash face, hands and any exposed skin thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Use only outdoors or in a well-ventilated area.  
Contaminated work clothing should not be allowed out of the workplace.  
Wear protective gloves.  
Do not breathe dust/fume/gas/mist/vapors/spray.  
Keep container tightly closed.  
Ground/bond container and receiving equipment.  
Use explosion-proof equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.

## 2. HAZARDS IDENTIFICATION (continued)

### Precautionary Statements-Response

**IF INHALED:** Remove person to fresh air and keep comfortable for breathing.  
Call a Poison Center or doctor/physician if you feel unwell.

**IF SWALLOWED:** Call a Poison Center or doctor/physician. Rinse mouth.

**IF EXPOSED:** Call a Poison Center or doctor/physician.

**IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists:  
Get medical advice/attention.

**IF ON SKIN (or hair):** Take off immediately all contaminated clothing.  
Rinse skin with water/shower. Wash contaminated clothing before reuse.

**IF SKIN IRRITATION OR RASH OCCUR:** Get medical advice/attention. Call a  
Poison Center or doctor/physician if you feel unwell.

**IN CASE OF FIRE:** Use water, CO<sub>2</sub>, dry chemical or foam to extinguish.

### Precautionary Statements - Storage

Store in a well-ventilated place. Keep cool.

**Keep out of the reach of children and pets.**

### Precautionary Statements - Disposal

Dispose according to all local, state and federal regulations. Waste should not be  
released into the sewer system.

### Hazards not otherwise classified (HNOC)

Not Applicable.

### Other Information

Toxic to aquatic life.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Weight-%	Trade Secret
Ethyl alcohol	64-17-5	57%	N/A
Methyl alcohol	67-56-1	25 - 40%	*
Isopropyl alcohol	67-63-0	1 - 5%	*
Formaldehyde	50-00-0	0.23%	N/A

\*The exact percentage of methyl alcohol and isopropyl alcohol is a trade secret.

## 4. FIRST AID MEASURES

### First Aid Measures

<b>Inhalation</b>	Remove person to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Call a physician or Poison Center immediately.
<b>Eye Contact</b>	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for several minutes. Call physician immediately.
<b>Ingestion</b>	Rinse mouth. Drink large amounts of water. Induce vomiting, but only if victim is fully conscious. Never give anything by mouth to a person who is unconscious or convulsing. Call a physician or Poison Center immediately.
<b>Skin Contact</b>	Wash off immediately with plenty of water for several minutes. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention. Call a physician if you feel unwell.

### Most Important Symptoms and Effects, both Acute and Delayed

<b>Symptoms</b>	Skin contact can lead to drying, itching, stinging and irritation. Prolonged breathing of vapors may cause nausea, headache, weakness and/or dizziness. Exposed individuals may experience eye tearing, redness, and discomfort.
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**Warning:** This product contains Methanol. Human exposure to methanol may result in illness, systemic poisoning, blindness, optic nerve damage and perhaps death, after being ingested, absorbed through the skin or inhaled.

### Indication of any Immediate Medical Attention and Special Treatment Needed

<b>Note to Physicians</b>	Treat symptomatically.
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## 5. FIRE-FIGHTING MEASURES

### Suitable Extinguishing Media

Use water, CO<sub>2</sub>, dry chemical or foam to extinguish.

### **Unsuitable Extinguishing Media**

Not Determined.

### Specific Hazards Arising from the Chemical

Extremely flammable.

### **Hazardous Combustion Products**

Carbon Monoxide.

### **Sensitivity to Static Discharge**

Take precautionary measures against static discharge.

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

#### **Personal Precautions**

Use personal protective equipment as required. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

#### **For Emergency Responders**

Restrict access to spill area. Ventilate the area.

#### **Environmental Precautions**

Prevent entry into waterways, sewers, basements or confined areas.  
See Section 12 for additional ecological information.

### Methods and Material for Containment and Cleaning Up

#### **Methods for Containment**

Prevent further leakage or spillage if safe to do so.

#### **Methods for Cleaning Up**

Flush small spills with water. Dike to collect large liquid spills.

## 7. HANDLING AND STORAGE

### Precautions for Safe Handling

#### **Advice on Safe Handling**

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Use personal protection recommended in Section 8.  
Wash thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Use only in well-ventilated areas.  
Do not breathe dust/fumes/gas/mist/vapors/spray.  
All equipment used when handling the product must be grounded.  
Use non-sparking hand tools and explosion-proof electrical equipment.  
Take precautionary measures against static discharges.  
Do not use as a cleaning solvent.

**Keep out of the reach of children and pets.**

### Conditions for Safe Storage, Including any Incompatibilities

#### **Storage Conditions**

Keep containers tightly closed in a dry, cool and well-ventilated place.

**Keep out of the reach of children and pets.**

#### **Packaging Materials**

Keep in original container.

#### **Incompatible Materials**

Strong oxidizing agents. Concentrated inorganic acids.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

### Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ethyl alcohol 64-17-5	TLV: 1000 ppm TWA: 1880 mg/m <sup>3</sup>	TWA: 1000 ppm TWA: 1900 mg/m <sup>3</sup>	NIOSH REL: TWA 1000 ppm (1900 mg/m <sup>3</sup> ) NIOSH IDLH: 3300 ppm LEL
Methyl alcohol 67-56-1	TLV: 200 ppm; TWA: 262 mg/m <sup>3</sup> (skin) (ACGIH 1991-1992). TLV (as STEL): 250 ppm; 328 mg/m <sup>3</sup> (skin) (ACGIH 1992-1993).	TWA: 200 ppm (260 mg/m <sup>3</sup> )	NIOSH REL: TWA 200 ppm (260 mg/m <sup>3</sup> ) ST 250 ppm (325 mg/m <sup>3</sup> ) (skin) NIOSH IDLH: 6000 ppm
Formaldehyde 50-00-0	ACGIH Ceiling: 0.3 ppm	TWA: 0.75 ppm (vacated) TWA: 3 ppm unless specified in 1910.1048 (vacated) STEL: 10 ppm 30 min. unless specified in 1910.1048 (vacated) Ceiling: 5 ppm unless specified in 1910.1048 STEL: 2 ppm see 1910.1048	IDLH: TWA 20 ppm TWA: 0.016 ppm
Isopropyl Alcohol 67-63-0	STEL: 400 ppm TWA: 200 ppm	TWA: 400 ppm TWA: 980mg/m <sup>3</sup> TWA: 400 ppm (Vacated) TWA: 980 mg/m <sup>3</sup> (Vacated) STEL: 500 ppm (Vacated) STEL: 1225 mg/m <sup>3</sup> (Vacated)	IDLH: 2000 ppm TWA: 400 ppm TWA: 980mg/m <sup>3</sup> STEL: 500 ppm STEL: 1225 mg/m <sup>3</sup>

### Appropriate Engineering Controls

#### Engineering Controls

Apply technical measures to comply with the occupational exposure limits.  
Eyewash stations.

### Individual Protection Measures, such as Personal Protective Equipment

#### Eye/Face Protection

Wear goggles, chemical safety glasses or a face protection shield.

#### Skin and Body Protection

Chemical resistant, impermeable gloves.

Wear appropriate clothing to prevent repeated or prolonged skin contact.

#### Respiratory Protection

Under normal conditions a respirator is not normally required.

A mask or respirator may be used if vapor concentration is high.

#### General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practices as listed in OSHA 3143 1998 (Revised).

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on Basic Physical and Chemical Properties

Physical State	Liquid.	
Appearance	Clear Liquid.	
Color	Clear.	
Odor	Alcohol.	
<b>Property</b>	<b>Values</b>	<b>Remarks * Method</b>
pH	5.8 - 7.0	68°F (20°C)
Melting Point / Freezing Point	> 5°F / > -15°C	
Boiling Point / Boiling Range	158 - 176°F / 70 - 80°C	(Approximate)
Flash Point	65°F / 18°C	ASTM D56
Evaporation Rate	1.5	(Butyl acetate = 1) (Approximate)
Flammability (Solid/Gas)	N/A - Liquid.	
Flammability Limits In Air		
Upper Flammability Limit	36%	(Methanol)
Lower Flammability Limit	6.0%	(Methanol)
Vapor Pressure	50.0 mm Hg	(Approximate) @ 68°F (20°C)
Vapor Density	1.59	(Air = 1) (Approximate)
Specific Gravity	0.795 - 0.825 g/cc	68°F (20°C) (Water = 1)
Water Solubility	Completely Soluble.	
Partition Coefficient	See Section 12.	
Autoignition Temperature	780°F / 416°C	(Approximate)
Decomposition Temperature	Not Determined.	
Kinematic Viscosity	Not Determined.	
Dynamic Viscosity	Not Determined.	
Explosive Properties	Possible for temperatures above 780°F / 416°C	

## 10. STABILITY AND REACTIVITY

### Reactivity

Not reactive under normal conditions.

### Chemical Stability

Stable under recommended storage conditions.

### Possibility of Hazardous Reactions

None under normal processing.

### Hazardous Polymerization

Hazardous polymerization will not occur.

### Conditions to Avoid

Avoid high temperatures.

### Incompatible Materials

Strong oxidizing agents. Concentrated inorganic acids.

### Hazardous Decomposition Products

Carbon monoxide. Stable under normal conditions.

## 11. TOXICOLOGICAL INFORMATION

### Information on Likely Routes of Exposure

#### Product Information

<b>Inhalation</b>	Headache, nausea and drowsiness.
<b>Eye Contact</b>	Causes substantial but temporary eye damage.
<b>Skin Contact</b>	May cause irritation and dryness (Not a primary dermal irritant but may cause an allergic skin reaction).
<b>Ingestion</b>	May be harmful or fatal; may cause blindness (High-level exposure may induce birth defects).

#### Component Information

Chemical Name	Oral LD <sub>50</sub>	Dermal LD <sub>50</sub>	Inhalation LC <sub>50</sub>
Ethyl alcohol (64-17-5)	7060 mg/kg ( Rat )	N/A	124.7 mg/L ( Rat ) 4 hr.
Methyl alcohol (67-56-1)	5628 mg/kg ( Rat )	15800 mg/kg ( Rabbit )	83.2 mg/L ( Rat ) 4 hr. 64000 ppm ( Rat ) 4 hr.
Formaldehyde (50-00-0)	500 mg/kg ( Rat )	N/A	0.578 mg/L ( Rat ) 4 hr.
Isopropyl Alcohol 67-63-0	4396 mg/kg ( Rat )	12800 mg/kg ( Rat )	72.6 mg/L ( Rat ) 4 hr.

### Information on Physical, Chemical and Toxicological Effects

<b>Symptoms</b>	Please see section 4 of this SDS for symptoms.
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### Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure

<b>Carcinogenicity</b>	May cause cancer. Ethanol has been shown to be carcinogenic in long-term studies only when consumed as an alcoholic beverage.
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Chemical Name	ACGIH	IARC	NTP	OSHA
Ethyl alcohol 64-17-5	A3	Group 1	Known	X
Formaldehyde 50-00-0	A2	Group 1	Reasonably Anticipated	X
Isopropyl Alcohol 67-63-0	A4	Group 3	N/A	N/A

#### **ACGIH (American Conference of Governmental Industrial Hygienists)**

A2 - Suspected Human Carcinogen  
A3 - Animal Carcinogen  
A4 - Not Classifiable as a Human Carcinogen.

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

Group 1 - Carcinogenic to Humans  
Group 3 - Not Carcinogenic to Humans.

#### **OSHA (Occupational Safety and Health Administration of the US Department of Labor)**

X - Present

## 11. TOXICOLOGICAL INFORMATION (continued)

### STOT - Single Exposure

May cause damage to organs.

### STOT - repeated exposure

Causes damage to organs through prolonged or repeated exposure

### Numerical Measures of Toxicity

Not Determined.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Toxic to aquatic organisms.

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Ethyl alcohol 64-17-5	No Information	Known Toxin	Known Toxin	Known Toxin
Methyl alcohol 67-56-1	No Information	Known Toxin	Known Toxin	No Information
Formaldehyde 50-00-0	No Information	Known Toxin	Known Toxin	Known Toxin
Isopropyl Alcohol 67-63-0	Known Toxin	Known Toxin	No Information	Known Toxin

### Persistence and Degradability

Not Determined.

### Bioaccumulation

Not Determined.

### Mobility

Not Determined.

Chemical Name	Partition Coefficient
Ethyl alcohol 64-17-5	-0.31
Methyl alcohol 67-56-1	-0.77
Formaldehyde 50-00-0	0.35
Isopropyl Alcohol 67-63-0	0.05

### Other Adverse Effects

Not Determined.

### 13. DISPOSAL CONSIDERATIONS

#### Waste Treatment Methods

##### Disposal of Wastes

Dispose according to all local, state and federal regulations. Waste should not be disposed of by release into the sewer system.

Chemical Name	RCRA	RCRA - Basis For Listing	RCRA - D Series Waste	RCRA - U Series Wastes
Methyl alcohol 67-56-1	N/A	Included in waste stream: F039	N/A	U154
Formaldehyde 50-00-0	U122	Included in waste streams: K009, K010, K038, K040, K156, K157	N/A	U122

Chemical Name	California Hazardous Waste Status
Ethyl alcohol 64-17-5	Toxic Ignitable
Methyl alcohol 67-56-1	Toxic Ignitable
Formaldehyde 50-00-0	Toxic Ignitable
Isopropyl Alcohol 67-63-0	Toxic Ignitable

### 14. TRANSPORT INFORMATION

#### Note

Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances. Based on package size, product may be eligible for limited quantity exception.

##### DOT

UN/ID No	UN1993
Proper Shipping Name	Flammable Liquids, n.o.s. (Ethanol, Methanol)
Hazard Class	3
Packing Group	II

##### IATA

UN/ID No	UN1992
Proper Shipping Name	Flammable Liquids, n.o.s. (Ethanol, Methanol)
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	II

##### IMDG

UN/ID No	UN1992
Proper Shipping Name	Flammable Liquids, n.o.s. (Ethanol, Methanol)
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	II

## 15. REGULATORY INFORMATION

### International Inventories

Not Determined.

#### Legend:

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/  
 European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

### US Federal Regulations

#### SARA 313

Chemical Name	CAS No	Weight %	SARA 313-Threshold Values %
Methyl alcohol	67-56-1	25 - 40%	1.0%
Formaldehyde	50-00-0	0.23%	0.1%
Isopropyl Alcohol	67-63-0	1 - 5%	1.0%

#### CWA (Clean Water Act)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
50-00-0	100 lb.	N/A	N/A	X

#### SARA 311/312 Hazard Categories

Chemical Name	Hazardous Substances RQs	CERCLA /SARA RQ	Reportable Quantity (RQ)
Methyl alcohol 67-56-1	5000 lb.	5000 lb.	RQ 5000 lb. final RQ RQ 2270 kg final RQ
Formaldehyde 50-00-0	100 lb.	100 lb.	RQ 100 lb. final RQ RQ 45.4 kg final RQ

### US State Regulations

Chemical Name	California Proposition 65
Ethyl alcohol - 64-17-5	Carcinogen, Developmental
Methyl alcohol - 67-56-1	Developmental
Formaldehyde - 50-00-0	Carcinogen

### U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Ethyl alcohol 64-17-5	X	X	X
Methyl alcohol 67-56-1	X	X	X
Formaldehyde 50-00-0	X	X	X
Isopropyl Alcohol 67-63-0	X	X	X

## 16. OTHER INFORMATION

### NFPA

Health Hazards	Flammability	Instability	Special Hazards
3	3	1	Not Determined.

### HMIS

Health Hazards	Flammability	Physical Hazards	Personal Protection
Not Determined.	Not Determined.	Not Determined.	Not Determined.

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### **Revision Note**

### Disclaimer

The information contained herein is furnished without warranty or legal responsibility of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determination of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees.

End of Safety Data Sheet