

**Section 1. IDENTIFICATION**1.1 Product Identifier

Date: May 11, 2017

Product Description: **VAP-X with CO<sub>2</sub>**  
Other Means of Identification: Organophosphate Insecticide  
CAS Number: Mixture  
EPA Registration. No. 8536-41

SDS No.: 530-USA-CPP

1.2 Relevant Identified Uses of the Substance or Mixtures and Uses Advised Against

Recommended Use: Insecticide  
Uses Advised Against: Use only in accordance with label instructions  
Not for use or storage in or around residential sites

1.3 Details of the Supplier of the Safety Data Sheet

Company: Cardinal Professional Products EPA Est. No. 48498-CA-01  
PO Box 782  
Hollister, CA 95024  
Telephone M-F, 8:00-4:30 PDT: 800-548-2223

SDS & Product Information, 8:00-4:30 PDT: 800-548-2223 or 831-637-0195  
E-mail: sds@cardinalproproducts.com

1.4 Emergency Telephone Numbers

**FOR CHEMICAL EMERGENCY (Spill, Leak, Fire, Exposure, or Accident)  
Call CHEMTREC Day or Night**

Within USA and Canada: 800-424-9300  
Outside USA and Canada: +1-703-527-3887 (collect calls accepted)

**Poison Control Center:** 800-222-1222

**NOTE TO PESTICIDE HANDLERS:** If the pesticide product end-use labeling contains specific instructions, requirements, or information that conflict with the requirements of the Worker Protection Standard or with this Safety Data Sheet (SDS), **follow the instructions, requirements, or information on the end-use labeling.** If there is a conflict between specific instructions or requirements in the Worker Protection Standard and this SDS, **follow the instructions or requirements of the Worker Protection Standard.** See Section 15 of this SDS for further information.

**Section 2. HAZARDS IDENTIFICATION**2.1 Classification of the Substance or Mixture

- Gases Under Pressure (Liquefied Gas) - H280
- Acute Toxicity, Category 3 (dermal) - H311
- Acute Toxicity, Category 4 (oral) - H302
- Acute Toxicity, Category 3 (inhalation) - H331
- Skin Corrosion/Irritation, Category 2 - H315
- Eye Damage/Irritation, Category 2B - H320
- Skin Sensitization, Category 1 - H317
- Aspiration Hazard, Category 2 - H305
- Hazardous to the Aquatic Environment - Acute, Category 1 - H400
- Hazardous to the Aquatic Environment - Chronic, Category 1 - H410

## 2.2 GHS Label Elements



Signal Word: **DANGER**

### Hazard Statements

- Contains gas under pressure; may explode if heated. H280
- Toxic in contact with skin or if inhaled. H311+H331
- Harmful if swallowed. H302
- Causes skin and eye irritation. H315+H320
- May cause an allergic skin reaction. H317
- May be harmful if swallowed and enters airways. H305
- Very toxic to aquatic life. H400
- Very toxic to aquatic life with long lasting effects. H410

### Precautionary Statements

#### Prevention

- Wear protective gloves/protective clothing/eye protection/face protection. P280
- Avoid breathing dust/gas/mist/vapors/spray. P261
- Wash hands and face thoroughly after handling. P264
- Do not eat, drink, or smoke when using this product. P270
- Contaminated work clothing should not be allowed out of the workplace. P272

#### Response

- In case of fire: Use foam, dry chemical or CO<sub>2</sub> extinguisher, water spray (fog) to extinguish. P370+378
- IF ON SKIN: Take off immediately all contaminated clothing. Wash with plenty of water and soap. Wash contaminated clothing before reuse. P302+361+353+352+364
- If skin irritation or rash occurs: Get medical advice or attention. P333+313
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse Mouth. DO NOT induce vomiting. P301+310+330+331
- IF INHALED: Remove person to fresh air and keep comfortable for breathing. P304+340
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P305+351+338
- If eye irritation persists: Get medical advice/attention. P337+313:
- Call a POISON CENTER or doctor/physician if you feel unwell. P312
- Collect spillage. P391

#### Storage

- Protect from sunlight. Store in a well-ventilated place. P410+403
- Keep container tightly closed. P233
- Store locked up. P405

#### Disposal

- Dispose of contents and container in accordance with government regulations. (See Section 13). P501

## 2.3 Other Hazards Not Otherwise Classified

- May displace oxygen and cause rapid suffocation.
- Exposure to CO<sub>2</sub> gas can cause skin frostbite.

## Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

### 3.1 Mixture of Substances

Chemical Identity	Synonyms	CAS Number	% Weight/Weight	
			16 lb cylinder	8.5 lb cylinder
Dimethyl 2,2-Dichlorovinyl Phosphate	Dichlorvos, DDVP	62-73-7	4.0*	0.48*
Petroleum Distillates and Aromatic Naphtha Solvent Blend		Mixture	45.0 – 45.5	5.3 – 5.4
Naphthalene		91-20-3	0.3 – 0.6	0.04 – 0.07
Cumene		98-82-8	0.06 – 0.3	0.01 – 0.04
Carbon Dioxide	CO <sub>2</sub>	124-38-9	50.0	94.1

\* % Active ingredient nominal.

## Section 4. FIRST AID MEASURES

### 4.1 Description of First Aid Measures

General Advice	<b>SEEK MEDICAL ATTENTION IN ALL CASES OF SUSPECTED POISONING</b>
Inhalation	IF INHALED: <ul style="list-style-type: none"> <li>• Remove to fresh air.</li> <li>• If not breathing, give artificial respiration.</li> <li>• If breathing difficult, give oxygen.</li> <li>• Get medical attention immediately.</li> </ul>
Eyes	IF IN EYES: <ul style="list-style-type: none"> <li>• Hold eyes open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first five minutes; then continue rinsing eyes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
Skin	IF ON SKIN OR CLOTHING: <ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or physician for treatment advice.</li> </ul>
Ingestion	IF SWALLOWED: <ul style="list-style-type: none"> <li>• Call a poison control center or physician immediately for treatment advice.</li> <li>• Do not give any liquid to the person.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or physician.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
Protection of First Aiders and Medical Personnel	Review the pesticide label for additional information.

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

- May be fatal if absorbed through skin.
- Causes moderate eye irritation.
- May cause allergic skin reaction.
- Acetyl cholinesterase inhibitor. (Dichlorvos)
- Aspiration pneumonia hazard.
- May displace oxygen and cause rapid suffocation.
- Exposure to CO<sub>2</sub> gas can cause skin frostbite.

### 4.3 Indication of Immediate Medical Attention or Special Treatment

- Contains petroleum distillates. Vomiting may cause aspiration pneumonia hazard.

- This product contains an organophosphate insecticide. Do not wait for laboratory confirmation to treat patients with strong clinical evidence of poisoning (i.e. atropine for cholinesterase inhibition).

## Section 5. FIRE FIGHTING MEASURES

### 5.1 Extinguishing Media

Suitable Extinguishing Media	Foam, dry chemical or CO <sub>2</sub> extinguisher, water spray (fog)
Unsuitable Extinguishing Media	Direct water stream

### 5.2 Specific Hazards Arising from the Chemical including Hazardous Combustion Products

- Do not use or store near heat or open flame.
- Do not apply this product in or on electrical equipment, due to the possibility of ignition or shock hazard.

Hazardous Combustion Products	<ul style="list-style-type: none"> <li>• Carbon monoxide, carbon dioxide, nitrogen oxides, hydrogen chloride, phosphorus oxides sulfur oxides.</li> </ul>
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### 5.3 Advice for Fire Fighters

Special Protective Equipment	<ul style="list-style-type: none"> <li>• Wear self-contained breathing apparatus and full turnout gear for fire situations.</li> </ul>
Precautions for Fire Fighters	<ul style="list-style-type: none"> <li>• Stay upwind.</li> <li>• Do not breathe vapors.</li> <li>• Move containers from fire area if you can do it without risk.</li> <li>• Cool containers with flooding quantities of water until well after fire is out.</li> </ul>

## Section 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

- While wearing personal protective equipment, evacuate personnel and ventilate area.
- Extinguish or remove all sources of potential ignition.
- If indoors, ventilate area of spill.
- Soak up with absorbent material, such as sand, sawdust, earth or fuller's earth, and discard with chemical wastes.
- After clean-up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.

### 6.2 Environmental Precautions

- Do not allow spilled or leaking material to enter drains, sewers, or waterways.
- Prevent entry into basements and other confined areas.

### 6.3 Methods and Materials for Containment and Cleaning Up

- Stop leak if without risk. Dike the spilled material where possible with sand, earth, or vermiculite.

### 6.4 Other Information

Refer to protective measures listed in Section 8. For disposal, see Section 13.

Note: Release of 18.8 gallons or more of this product means 10 pounds or more of Dichlorvos has been released and is therefore reportable to the National Response Center and may be reportable to local and state regulators.

## Section 7. HANDLING AND STORAGE

### 7.1 Precautions for Safe Handling

<p>This product is a highly hazardous material and must be handled with care only by those individuals experienced with its proper use. IF THIS PRODUCT IS BEING APPLIED AND THE INFORMATION IN THIS SDS DIFFERS FROM THAT ON THE END USE LABELING FOR THIS PRODUCT, THE HANDLER MUST FOLLOW THE PRECAUTIONARY</p>
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**STATEMENTS ON THE END USE LABELING.**

- Take prudent precautions to avoid contact with skin, eyes, and clothing.
- Take prudent precautions to avoid breathing vapors and/or spray mists of this product.
- Wear PPE in accordance with the label (See Section 8). Leather or other abrasion resistant gloves can be worn when handling or moving closed and capped cylinders containing this product.
- Always have adequate clean water available to wash the skin.
- Wash hands and face before eating, drinking, or smoking after handling material. Handle in accordance with good industrial hygiene and safety practice.
- Mechanical ventilation should be used when handling this product in enclosed spaces.
- Do not drop, drag, slide or roll cylinders on their sides.
- Ropes, slings, hooks, tongs, and similar handling devices should not be used for unloading cylinders. A suitable hand truck, fork truck, or similar device to which the cylinders can be firmly secured should be used for transporting the heavier cylinders.
- Keep valves closed and secured with the valve cap, when the cylinder is not in use or is empty. Only hand-tighten valves and caps.
- Use an adjustable strap wrench to remove caps that are over-tightened or rusted. Never insert an object (e.g. wrench, screw driver) into cap openings.
- Avoid contact with incompatible materials. See Section 10 for specific materials to avoid.
- Keep away from heat or open flame.
- Do not contaminate water, food, or feedstuffs by storage, handling, or disposal.
- Read and observe all precautions and instructions on the label.

**7.2 Conditions for Safe Storage**

- KEEP OUT OF REACH OF CHILDREN
- Cylinders and containers should be tightly closed, and stored upright in a dry, well-ventilated area under lock and key (secured).
- Keep away from heat, open flame, and/or ignition sources.
- Post as a pesticide storage area.
- Do not contaminate water, food, or feed by storage, handling, or disposal.

**7.3 Specific End Uses**

Use only in accordance with the product’s end use label.

**Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**8.1 Control Parameters**

OCCUPATIONAL EXPOSURE LIMITS FOR *Dichlorvos* (CAS 62-73-7)

SOURCE OF EXPOSURE LIMIT	TYPE	VALUE		NOTE
US ACGIH, Threshold Limit Values (TLVs) (Basis of TLV is Cholinesterase Inhibition)	TWA	0.1 mg/m <sup>3</sup>	0.01 ppm	Skin
US OSHA, Table Z-1 Limits for Air Contaminants, 29 CFR 1910.1000, Permissible Exposure Limit	TWA	1.0 mg/m <sup>3</sup>	0.1 ppm	Skin
US NIOSH, Recommended Exposure Limits	TWA	1.0 mg/m <sup>3</sup>	0.1 ppm	Skin
US NIOSH, Documentation for Immediately Dangerous to Life or Health	IDLH	100 mg/m <sup>3</sup>	11 ppm	

Monitoring Methods	Dichlorvos Conversion: 1 ppm = 9.02 mg/m <sup>3</sup> @ 25 °C
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**8.2 Exposure/Engineering Controls**

General Hygiene:	<ul style="list-style-type: none"> <li>• Wash promptly if skin becomes contaminated.</li> <li>• Wash at the end of each work shift and before eating, drinking, smoking, and using the toilet.</li> <li>• Handle in accordance with good industrial hygiene and safety practice.</li> <li>• Use personal protective equipment as required.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Keep working clothes separate.</li> <li>• Do not eat, drink, smoke or apply cosmetics when using this product.</li> </ul>
Equipment	Provide easy access to adequate water supply for eye flushing or skin decontamination in the work area. For field handling and application situations, refer to the pesticide end-use label for emergency water requirements.
Ventilation	Mechanical ventilation should be used when handling this product in enclosed spaces. Local exhaust ventilation may be necessary.

#### INDIVIDUAL PROTECTION MEASURES

Eyes/Face	<p>Take prudent precautions to avoid contact with eyes. Wear protective eyewear when handling. To protect against exposure to CO<sub>2</sub> when transferring between cylinders, wear a:</p> <ul style="list-style-type: none"> <li>• face shield worn over safety glasses with side shields, or</li> <li>• full-facepiece respirator</li> </ul>
Skin	<p>Mixers, loaders, applicators and other handlers must wear:</p> <ul style="list-style-type: none"> <li>• long-sleeved shirt,</li> <li>• long pants,</li> <li>• shoes and socks, and</li> <li>• chemical-resistant gloves.</li> </ul> <p>Note: Some materials that are chemical-resistant to this product are Barrier Laminate, Butyl Rubber, Nitrile Rubber, Neoprene Rubber, Polyvinyl Chloride or Viton. If you want more options, follow the instructions for category “C” on an EPA chemical-resistance category selection chart.</p>
Respiratory	<p><b>WHEN APPLYING AS A PESTICIDE, FOLLOW THE END-USE PESTICIDE LABEL INSTRUCTIONS FOR RESPIRATORY PROTECTION</b></p> <p><u>For pesticide application (the instructions in this section are extracted from the product’s end-use label:</u> Wear a NIOSH-approved respirator with:</p> <ul style="list-style-type: none"> <li>• an organic-vapor-removing cartridge with a pre-filter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or,</li> <li>• a canister approved for pesticides (MSHA/NIOSH approval number TC-14G) or,</li> <li>• an organic-vapor-removing cartridge or canister with any N, R, P, or HE pre-filter.</li> </ul>
NOTE: Only respirators certified (approved) to meet NIOSH Standards shall be used for Respiratory Protection	<p><b>FOR NON-PESTICIDE APPLICATION INHALATION EXPOSURE SCENARIOS</b></p> <p><u>For IDLH (11 ppm) – Immediately Dangerous to Life and Health:</u></p> <ul style="list-style-type: none"> <li>• A full facepiece pressure demand SCBA certified for a minimum service life of thirty minutes.</li> <li>• A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.</li> </ul> <p><u>For emergency or planned entry into unknown concentrations:</u></p> <ul style="list-style-type: none"> <li>• A full facepiece pressure demand SCBA certified for a minimum service life of thirty minutes.</li> <li>• A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.</li> </ul> <p><u>For escape*</u></p> <ul style="list-style-type: none"> <li>• Air-purifying respirator equipped with full facepiece and an organic vapor cartridge.</li> <li>• Any air-purifying hood style CBRN escape-certified respirator.</li> <li>• Air-purifying respirator with canisters that include the escape gas mask (canister) respirator, the gas mask (canister) respirator, and the filter self-rescuer.</li> <li>• Any self-contained breathing apparatus with hood or full-facepiece mask.</li> </ul> <p>*Respirators <u>certified</u> “escape only” can only be used for escape purposes and CANNOT be used for responding to emergencies.</p>

#### PERSONAL PROTECTION FOR SPILLS/EMERGENCY

Fire	If fire only, use normal fire-fighting equipment. If chemical releases and fire involved, wear recommended chemical protective clothing in conjunction with fire-fighting gear.
Spills	Minimum PPE: Full facepiece air-purifying respirator with organic vapor cartridge and chemical resistant gloves. Upgrade respiratory protection in accordance with the “Respiratory” section above.

Chemical Protective Clothing	<ul style="list-style-type: none"> <li>For small cleanup where liquid splash is unlikely, a liquid impervious chemical coverall with booties and head cover should be worn, for example, Tyvek® QC or Saranex™ SL.</li> <li>For cleanup, where liquid splash or contact is likely, wear a Level B suit made of a material such as Tychem® BR.</li> <li>In confined areas or areas where substantial vapor levels exist, use a Dupont™ Responder® level suit or equivalent for use against permeation.</li> </ul>
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## Section 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on Basic Physical and Chemical Properties

Appearance	Colorless
Physical State	Liquid pressurized with gas
Odor	Petroleum-like
Odor Threshold	Not available
pH	3.89 (as a 1% w/w solution) [without the CO <sub>2</sub> ]
Melting Point	Not applicable
Freezing Point	Not available
Boiling Point	Not available
Boiling Range	Not available
Flash Point (°C)	Not applicable
Evaporation Rate	Not available
Flammability (solid, gas)	Not applicable
Flammability Limits in air, Upper % by volume	Not available
Flammability Limits in air, Lower % by volume	Not available
Vapor Pressure	Not available
Vapor Density	Not available
Relative Density (g/cm <sup>3</sup> ) (Specific Gravity)	0.801 @ 20 °C (68 °F) H <sub>2</sub> O = 1 [without the CO <sub>2</sub> ]
Density @ 20 °C	6.67 lbs. / gal. (water = 8.33 lbs/gal) [without the CO <sub>2</sub> ]
Solubility	Insoluble in water. Mostly soluble in oil (Product is miscible with aromatic hydrocarbons and is not miscible with aliphatics)
Partition Coefficient (n-octanol/water)	Not available
Autoignition Temperature	Not available
Decomposition Temperature	Not available
Viscosity	1.688 centistokes @ 20° C (kinematic)

### 9.2 Other Information

% Volatile	100
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## Section 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

- Hazardous polymerization is not known to occur.

### 10.2 Chemical Stability

- Product is stable.

### 10.3 Possibility of Hazardous Reactions

- No information available.

#### 10.4 Conditions to Avoid

- Exposure to heat or flame from fire

#### 10.5 Incompatible Materials

- May react with strong acids, bases, or other strong oxidizing materials.

#### 10.6 Hazardous Decomposition Products

- Thermal decomposition in the presence of air may yield acrid smoke. Hydrogen chloride, phosphorus oxide, and carbon oxides.

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on Toxicological Effects

#### Product Information

GHS Category 4 (Oral)	550 mg/kg	Acute Oral LD <sub>50</sub> Rat (of body weight in female rats), 14 day
GHS Category 3 (Dermal)	853.4 mg/kg	Acute Dermal LD <sub>50</sub> Rat (of body weight in female rats) (between 2,000 - 5,000 mg/kg (of body weight in male rats) 24 hour, 14 day
GHS Category 3 (Inhalation)	>2.1 mg/L	Acute Inhalation LC <sub>50</sub> rat (nose only, male and female rats), 4 hour, 14 day

Skin Corrosion / Irritation	Category 2	Severely irritating to skin of rabbit
Serious Eye Damage / Irritation	Category 2B	Mildly irritating to eye of rabbit.
Irritation to Respiratory Tract		May cause respiratory tract irritation
Respiratory or Skin Sensitization	Category 1	Predictive tests in animals demonstrate that dichlorvos causes skin sensitization (NIOSH Skin Notation Profiles, 04/2017)

#### Signs & Symptoms of Exposure

Skin	May cause skin irritation. Symptoms include redness and burning of skin. May cause allergic skin reaction. Passage of this product into the body through the skin is possible, and may result in decreased activity of cholinergic activity. Exposure to CO <sub>2</sub> gas can cause skin frostbite.
Eyes	May cause mild eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.
Ingestion	Swallowing this material may be harmful or fatal. Vomiting may cause aspiration pneumonia hazard.
Inhalation	Breathing this material may be harmful or fatal. Symptoms include respiratory tract irritation, vomiting, diarrhea, cough, difficult breathing, shortness of breath, central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness, and other nervous system effects). Symptoms are not expected at air concentrations below recommended exposure limits. May displace oxygen and cause rapid suffocation.
Signs & Symptoms of Cholinesterase Inhibition due to Dichlorvos	Cholinesterase inhibitors can cause eye pain, dim or blurred vision, lachrymation, sweating, nausea, vomiting, heavy salivation and secretion in the lungs, involuntary defecation, diarrhea, tremor, incoordination, weakness, ataxia, hypothermia, lowered heart rate, and/or a fall in blood pressure, and unconsciousness as a result of their action at cholinergic nerve sites.

Chronic Effects	<ul style="list-style-type: none"><li>• Prolonged or repeated contact may dry skin and cause dermatitis. Symptoms include redness, burning, and drying and cracking of skin, skin burns, and other skin damage.</li></ul>
Specific Target Organ Toxicity – single exposure	<ul style="list-style-type: none"><li>• No data available</li></ul>



Specific Target Organ Toxicity –repeated - exposure	<p>Repeated-Dose Toxicity:</p> <ul style="list-style-type: none"> <li>Exposure to the petroleum components in this product has been found to cause kidney damage in male rats but is not expected to occur in humans.</li> <li>Overexposure to the petroleum components in this product has been suggested as the cause of the following effects in laboratory animals – central nervous system damage, cardiovascular effects.</li> <li>Overexposure to the solvent components in this product has been suggested as a cause of the following effects in humans – cataracts, eye damage.</li> </ul>
Germ Cell Mutagenicity	Negative results based on available data
Carcinogenicity	<p>Data not available for product</p> <p><b>Dichlorvos:</b>  Group 2B IARC Possibly carcinogenic to humans (1991)  Not Listed: NTP  Not Listed: OSHA  A4 ACGIH Not classifiable as a human carcinogen</p> <p><b>Cumene</b>  Group 2B IARC Possibly carcinogenic to humans (2013)  Not Listed: OSHA</p> <p><b>Naphthalene</b>  Group 2B IARC Possibly carcinogenic to humans (2002)  NTP Reasonably anticipated to be a human carcinogen (2004)</p>
Reproductive Toxicity	Negative results based on available data
Aspiration Hazard	GHS Category 2 If swallowed, aspiration potential is presumed based on petroleum constituents of product.
Interactive Effects	Data not available
Neurotoxicity	Data not available for product. Dichlorvos - Delayed neuropathy observed in chickens (staggered gait)
Confirmation of exposure	No specific biological exposure indicator (BEI) for Dichlorvos. BEI for Acetylcholinesterase Inhibiting Pesticides, which is based on decreased cholinesterase activity in red blood cells.

## Section 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity (No data available for product, only componenets)

Aquatic Toxicity	<p>Mixture Components Summation Method – GHS Acute Category 1</p> <p>Petroleum Distillates component Based on available data, does not meet classification criteria</p> <p>Dichlorvos component</p> <ul style="list-style-type: none"> <li>Acute Category 1 LC<sub>50</sub> = 0.27 mg/L, 96 hr, Bluegill</li> <li>Acute Category 1 EC<sub>50</sub> = 0.000144 mg/L, 48 hr, Daphnia</li> </ul> <p>Aromatic solvent component</p> <ul style="list-style-type: none"> <li>Acute Category 1 EC<sub>50</sub> = 0.95 mg/L, 48 hr, Daphnia</li> </ul> <p>Naphthalene component</p> <ul style="list-style-type: none"> <li>Acute Category 2 LC<sub>50</sub> = 6.08 mg/L, 96 hr, Fathead minnow</li> </ul> <p>Cumene component</p> <ul style="list-style-type: none"> <li>Acute Category 2 EC<sub>50</sub> = 2.6 mg/L, 72 hr, Algae</li> </ul>
Long Term Ecotoxicity	<p>Mixture Components Summation Method - GHS Long Term Category 1 <i>12% of the 16 pound cylinder mixture consists of ingredients of unknown chronic hazards to the aquatic environment.</i></p> <p>Dichlorvos component</p> <ul style="list-style-type: none"> <li>GHS Long Term Cat 1 NOEC = 0.000120 mg/L, 21 day, Daphnia</li> <li>GHS Long Term Cat 2 NOEC = 0.070 mg/L, 28 day, Fathead minnow</li> </ul>
Terrestrial Toxicity	<p>Dichlorvos</p> <ul style="list-style-type: none"> <li>Toxic to bees and frogs</li> </ul>

## 12.2 Persistence and Biodegradability (Environmental Fate)

- No data available for product
- Dichlorvos is considered biodegradable in aerobic and anaerobic conditions.

## 12.3 Bioaccumulative Potential

- No data available for product
- Dichlorvos bioaccumulation is considered low.

## 12.4 Mobility in Soil

- Data not available for product.

## 12.5 Results of PBT and vPBT Assessment

- No data available for assessment

## 12.6 Other Adverse Effects

- This product may be toxic to fish, birds, bees, frogs, and other wildlife.

## 12.7 Additional Information – none

# Section 13. DISPOSAL CONSIDERATIONS

## 13.1 Waste Treatment Methods

Cylinder Management	<ul style="list-style-type: none"><li>• Cylinders containing VAP-X should be returned according to instructions on the product label.</li><li>• When the cylinder is empty, close valve, screw safety cap tightly onto valve outlet, and replace protection bonnet.</li><li>• Do not ship cylinders without safety caps or valve protection bonnets.</li><li>• Return all empty cylinders to Cardinal Professional Products.</li><li>• If a cylinder is partially full and there is no further requirement for the product, contact the distributor for return instructions.</li></ul>
Safe Handling	<ul style="list-style-type: none"><li>• Do not apply directly to water.</li><li>• Do not contaminate water, food, or feed by storage or disposal.</li><li>• Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollution Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge.</li><li>• Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority.</li><li>• For guidance contact your State Water Board or Regional Office of the EPA.</li></ul>
Disposal of Product	<ul style="list-style-type: none"><li>• Pesticide wastes are acutely toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of local, state, and national regulations.</li><li>• If these wastes cannot be disposed of by use according to label instructions, contact your Pesticide or Environmental Control Agency, a Hazardous Waste representative, or the product manufacturer or distributor for guidance.</li></ul>
Container Disposal	<ul style="list-style-type: none"><li>• Containers are the property of the registrant or distributor and must be returned promptly after use for refilling or for disposal.</li></ul>

## 13.2 Additional Information – None

## Section 14. TRANSPORT INFORMATION

ADR, IMDG, US DOT, IATA

14.1	UN Number	NA 1955
14.2	UN Proper Shipping Name	Organic phosphorus compound, mixed with compressed gas
14.3	Transport Hazard Class(es)	2.3
14.4	Packing Group	Not applicable
14.5	Environmental Hazards	Aquatic Toxicity
	Marine Pollutant	Yes (Dichlorvos)
	Hazardous Substance	Yes (Dichlorvos, Naphthalene)
	Reportable Quantity	RQ = 10 lbs (Dichlorvos) RQ = 100 lbs (Naphthalene)
		NOTES:  Non-bulk packaging transported by highway is not subject to marine pollutant requirements.  If shipping in accordance with DOT-SP 11044, the RQ and Hazardous Substance shipping paper and package marking requirements do not apply.  Release of 18.8 gallons or more of this product means 10 pounds or more of Dichlorvos has been released and is therefore reportable to the National Response Center.
14.6	Special Precautions	Cylinders are to be transported in accordance with DOT-SP 11044.  Cylinders must be secured against all movement during transport. Keep markings or labels on package until cleaned and purged of residue. For cylinders, ensure valve is closed and safety cap(s) and valve protection are in place prior to transport.
14.7	Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable
14.8	IATA	Cargo and Passenger – Forbidden for any amount.
	Poison-by-Inhalation Hazard	Yes
	Zone	C
	North American Emergency Response Guide	123
	DOT Package Marking	NA 1955, Organic phosphorus compound, mixed with compressed gas
	Hazard Warning Label	Poison Gas 2.3
	Placards	Poison Gas 2.3

## Section 15. REGULATORY INFORMATION

### 15.1 Regulatory Information

#### U.S. FEDERAL

##### FIFRA

This chemical is a pesticide product registered by the U.S. Environmental Protection Agency and is subject to certain labeling requirements under US federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label.

**WARNING**

- Combustible.
- Contains Petroleum Distillate.
- May be fatal if absorbed through the skin.
- Harmful if swallowed.
- Causes moderate eye irritation.

OSHA This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**U.S. FEDERAL**

(CERCLA - Superfund): (SARA Title III)

Section 302.4 (RQ)	Dichlorvos, CAS 62-73-7 (10 lbs) Naphthalene, CAS 91-20-3 (100 lbs)																								
Section 302, EHS (TPQ)	Dichlorvos, CAS 62-73-7 (1,000 lbs)																								
Section 311/312 (Tier II)	Yes																								
SARA Hazard Codes	Product – Sudden Release of Pressure; Immediate Health Hazard																								
Section 313	This product contains the following EPCRA section 313 chemicals subject to the reporting requirements of EPCRA section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372):  <table border="1"><thead><tr><th><u>CAS Registry Number</u></th><th><u>Chemical Name</u></th><th><u>% by Weight</u></th><th><u>% de Minimus</u></th></tr></thead><tbody><tr><td colspan="4">For 16 pound cylinder:</td></tr><tr><td>62-73-7</td><td>Dichlorvos</td><td>4.0</td><td>0.1</td></tr><tr><td>91-20-3</td><td>Naphthalene</td><td>0.6 – 1.2</td><td>0.1</td></tr><tr><td colspan="4">For 8.5 pound cylinder:</td></tr><tr><td>62-73-7</td><td>Dichlorvos</td><td>0.48</td><td>0.1</td></tr></tbody></table>	<u>CAS Registry Number</u>	<u>Chemical Name</u>	<u>% by Weight</u>	<u>% de Minimus</u>	For 16 pound cylinder:				62-73-7	Dichlorvos	4.0	0.1	91-20-3	Naphthalene	0.6 – 1.2	0.1	For 8.5 pound cylinder:				62-73-7	Dichlorvos	0.48	0.1
<u>CAS Registry Number</u>	<u>Chemical Name</u>	<u>% by Weight</u>	<u>% de Minimus</u>																						
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62-73-7	Dichlorvos	4.0	0.1																						
91-20-3	Naphthalene	0.6 – 1.2	0.1																						
For 8.5 pound cylinder:																									
62-73-7	Dichlorvos	0.48	0.1																						

**TSCA - Toxic Substances Control Act**

TSCA Inventory List, Section 8(b):	All components in this product are listed
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**STATE**

Components in this product can be found on the following state right-to-know lists:		
Dichlorvos	CAS 62-73-7	New Jersey, Pennsylvania, Rhode Island, Massachusetts, Louisiana
Naphthalene	CAS 91-20-3	New Jersey, Pennsylvania, Rhode Island, Massachusetts
Cumene	CAS 98-82-8	New Jersey, Pennsylvania, Rhode Island, Massachusetts

California Proposition 65 Component:
WARNING: This product contains a chemical known to the State of California to cause cancer.
Dichlorvos CAS 62-73-7
Naphthalene CAS 91-20-3
Cumene CAS 98-82-8
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
No component is listed

## Section 16. OTHER INFORMATION

Version 2 Date: May 11, 2017

Revision History:

08-11-15	Original Version
05-11-17	Sections 2, 4, & 11: Updated GHS Classification and Toxicological Information to reflect skin sensitization designation

NFPA



NFPA Hazard Scale: 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

Abbreviations and Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement concerning the Internal Carriage of Dangerous Goods by Road
CAS	Chemical Abstracts Service
CBRN	Chemical, Biological, Radiological, and Nuclear
CERCLA	Comprehensive Environmental Response, Compensation, and Liability, Act
CFR	Code of Federal Regulations
DOT	Department of Transportation (USA)
EC <sub>50</sub>	Half Maximal Effective Concentration - concentration of a material in water, a single dose which is expected to cause a biological effect on 50% of a group of test species.
EPCRA	Emergency Planning and Community Right to Know Act
FIFRA	Federal Fungicide, Insecticide, and Rodenticide Act
IARC	International Agency for Research on Cancer
IDLH	Immediately Dangerous to Life and Health - the maximum airborne concentration from which one could escape [within 30 minutes] without any escape-impairing symptoms or any irreversible health effects.
IMDG	International Maritime Dangerous Goods
LC <sub>50</sub>	Lethal Concentration - median dose at which 50% of test animals die from inhalation
LD <sub>50</sub>	Lethal Dose - median dose at which 50% test animals die from oral or dermal exposure
NOEC	No Observed Effect Concentration
NTP	National Toxicology Program
NFPA	National Fire Protection Association
OSHA	Occupational Health and Safety Administration
PBT	Persistent, Bioaccumulative, Toxic
ppm	part per million
PPE	Personal Protective Equipment
SARA	Superfund Amendments and Reauthorization Act
TWA	Time Weighted Average airborne concentration for a worker in an 8 hour day
vPvB	Very Persistent and Very Bioaccumulative

Key Literature References and Sources of Data:

- Toxnet – Toxicology Data Network, United States National Library of Medicine
- The International Uniform Chemical Information Database (**IUCLID**) – Organization for Economic Cooperation and Development (OECD)
- Manufacturer pesticide registration data for US EPA

## **Warranty**

Notice: The information above is believed to be accurate and represents the best information currently available to us. Seller warrants that this product conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use, but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to seller, and buyer assumes the risk of any such use. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.