SECTION 1: Identification

1.1 Product identifier
Trade name: PyroVex® B-109-58

Chemical Name and Synonyms:
Carbonic dichloride, polymer with 4,4’-(1-methyleneidene) bis[2,6-dibromophenol], bis(2,4,6-tribromophenyl) ester; TBBPA carbonate oligomer; BC-58; 2,4,6-Tribromophenyl-terminated tetrabromobisphenol-A carbonate oligomer (RDT-7); Phenoxy-terminated carbonate oligomer of Tetrabromobisphenol A

CAS-No.: 71342-77-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

1.2.1 Relevant identified uses: Used as flame retardant for thermoplastic resin systems.

1.2.2 Recommended restrictions on use: Professional users only.

1.3 Details of the supplier of the safety data sheet

Velsicol Chemical LLC.
10400 W. Higgins Road, Suite 303
Rosemont, Illinois 60018 USA
Phone: (847) 813-7888
Fax: (847) 768-3227
www.velsicol.com

1.4 Emergency telephone number
Outside the continental U.S.A. call CHEMTREC 1-800-424-9300 (24 hours)
In the continental U.S.A. call CHEMTREC 703-527-3887 (24 hours)

SECTION 2: Hazards Identification

2.1 Hazard classification and Hazard statement(s)
No adverse health effects in human are known

2.2 Precautionary statements: Not available

2.3 Signal Word: None

2.4 Pictograms: None

2.5 Other hazards: No available

2.6 Additional Information: No available

SECTION 3: Composition/information on ingredients:

3.1 Polymer:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS number</th>
<th>% by Weight</th>
<th>% Bromine Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonic dichloride, polymer with 4,4’-(1-methyleneidene) bis[2,6-dibromophenol], bis(2,4,6-tribromophenyl) ester</td>
<td>71342-77-3</td>
<td>≥98</td>
<td>58</td>
</tr>
</tbody>
</table>

3.2 Impurities and stabilizing additives
No information available
SECTION 4: First-Aid Measures

4.1 Description of first aid measures

4.1.1 General information:
Inhalation and skin contact are expected to be the primary routes of occupational exposure.

4.1.2 Following inhalation:
Remove to under fresh air. If breathing is difficult, give artificial respiration. Get medical attention.

4.1.3 Following skin contact:
Wash skin with soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse.

4.1.4 Following eye contact:
Flush with plenty of water for at least 15 minutes. Get medical attention.

4.1.5 Following ingestion:
Rinse mouth with water. Get medical attention.

4.1.6 Self-protection of the first aider:
See section 8

4.1.7 Notes for the doctor:
Not available.

4.2 Most important symptoms and effects, both acute and delayed
Not available.

4.3 Indication of any immediate medical attention and special treatments needed:
Not available.

SECTION 5: Fire-Fighting Measures

5.1 Extinguishing media
Flammability Properties: Non-flammable.
Suitable extinguishing media: Use extinguishing media appropriate to surrounding fire conditions.
Unsuitable extinguishing media: Not applicable.

5.2 Special hazards arising from the substance or mixture
Carbon oxides and Hydrogen bromide gas. Exposure to decomposition products may be a hazard to health.

5.3 Advice for fire fighters
Fire-fighters should wear protective clothing and Self-Contained Breathing Apparatus (SCBA) with chemical resistant gloves. Firefighting equipment should be thoroughly decontaminated after use.

SECTION 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures
Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent possible contamination of skin, eyes and personal clothing. Avoid dust formation. Avoid breathing dust.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not allow to enter drainage system.
In case of spillage to water course or public sewers inform responsible authorities.

6.3 **Methods and materials for containment clearing up**
Stop the leak if possible. Pick up and arrange disposal without creating dust. Sweep up and shovel. Dispose of contents/container in accordance with local/regional/national/international regulation.

6.4 **References to other sections**
See sections 7, 8 and 13 for further advice.

**SECTION 7: Handling and Storage**

7.1 **Precautions for safe handling**
Handle in accordance with good industrial hygiene and safety practices. Wear suitable protective clothing, gloves and eye/face protection. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

7.2 **Conditions for safe storage, including any incompatibilities**
Store in well-ventilated and dry area; Keep container tightly closed.

Specific incompatibilities
strong oxidizing agents and moisture.

7.3 **Specific end uses(s)**
Raw industrial material.

**SECTION 8. Exposure Controls/Personal Protection**

8.1 **Control parameters**
No exposure limits have been established for this product. Occupational exposure to this product may occur through inhalation and dermal contact with this compound at workplaces where it is produced or used.

8.2 **Exposure controls**

8.2.1 **Appropriate engineering controls:**
Provide ventilation if necessary to minimize exposure. If practical use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

8.2.2 **Personal protective measures:**
Handle in accordance with good industrial hygiene and safety practice. Remove all contaminated clothing. Wash hands before breaks and at the end of work.

**Respiratory protection**
Dust respirator.

**Body Protection**

**Eye and face protection**
Safety glasses with side-shields. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.2.3 Environmental exposure controls:
Do not contaminate water. Do not flush into surface water or sanitary sewer system.

SECTION 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties
Appearance: White powder
Odor: No distinctive odor.
Odor threshold: No information available.
\( \text{pH} \): no data available
Boiling point (average): no data available
Melting point/freezing point: 230°C - 260°C
Flashpoint: 206.6°C
Evaporation rate: No information available.
Flammability (solid): Not flammable
Vapor pressure: 1.41E-07 mmHg at 25°C
Vapor density: no data available
Specific Gravity: 2.2 g/cm³
Bulk Loose Density @ 25 °C, g/ml: 0.66
Bulk Packed Density @ 25 °C, g/ml: 1.02
Solubility in water: < 1 mg/ml
Solubility in other solvents: varies
Surface tension: no data available
Partition coefficient: no data available
Auto ignition temperature: no data available
Decomposition temperature: 1% Weight loss at 380°C
Viscosity: Not applicable
Explosive properties: no data available
Oxidizing properties: no data available
Dissociation Constant: no data available
Molecular Weight: 973.59

9.2 Other information:
No information available.

SECTION 10: Stability and Reactivity

10.1 Reactivity
No hazardous reaction when handled and stored according to provisions.

10.2 Chemical stability
This substance is stable under recommended storage conditions.

10.3 Others
Possibility of hazardous reactions:
No hazardous reactions expected under normal conditions of use.

Conditions to avoid:
No data available
Incompatible materials:
Strong oxidizing agents

Hazardous decomposition products:
Carbon oxides, Hydrogen bromide gas. In the event of fire: see section 5

SECTION 11: Toxicological Information

11.1 Information on toxicological effects
Velsicol Chemical LLC has not conducted toxicity tests on this substance. However, toxicity data are available for this or similar substances.

(a) Acute toxicity
This substance is not classified as acute toxic for all exposure route listed below:

<table>
<thead>
<tr>
<th>Acute Toxicity</th>
<th>Effect Dos /Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Oral Toxicity</td>
<td>LD50: &gt; 5.000 mg/kg (rat)</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50: &gt; 2.000 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Acute inhalative toxicity (dust/mist)</td>
<td>no data available</td>
</tr>
</tbody>
</table>

(b) Skin corrosion/irritation
no data available

(b) Serious eye damage/irritation
no data available

(d) Respiratory/skin sensitisation
no data available

(e) Germ cell mutagenicity
no data available

(f) Carcinogenicity
No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, ACGIH, NTP and OSHA.

(g) Reproductive toxicity
no data available

(h) STOT-single exposure
no data available

(i) STOT-repeated exposure
no data available

(j) Aspiration hazard
no data available

(k) Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
SECTION 12: Ecological Information

12.1. Toxicity
VELSICOL Chemical LLC has not conducted toxicity tests on this substance. However, some data are available on the components of this material.

According to the data, it shows that it may contaminate on hydrophilic life-form, so it should not release into drainage system.

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance is not considered to be persistent, bio-accumulative and toxic (PBT).

12.6 Other adverse effects
No data available

SECTION 13: Disposal Considerations

Burn in a chemical incinerator equipped with an afterburner and scrubber. Recycle to process, if possible. Dispose of contents/container in accordance with local/regional/national/international regulation.

SECTION 14: Transport Information

Not dangerous goods

SECTION 15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This substance included on or exempted from listing on the following inventories:
United States - Inventory TSCA (Note(s): tXU)
Canada - Domestic Substances List (DSL)
Australia - Inventory of Chemical Substances (AICS, Note(s): aU)
China - Inventory of Existing Chemical Substances (IECSC)
Korea - Existing and Evaluated Chemical Substances (KECL) (KE-04738)
New Zealand - Inventory of Chemicals (Note(s): nzI1)
Philippines - Inventory of Chemicals and Chemical Substances (PICCS)

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards
California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

15.2 Chemical Safety Assessment
No information available.

SECTION 16: Other Information

16.1 Indication of changes
V1: This is the first SDS under OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200(g))
26 February 2014
V2: Change PyroVex to ResNovae. 06 November 2015
V3: Change ResNovae to PyroVex, replace ResNovae.com to Velsicol.com, and replace logo, 29 August, 2016

16.2 Key literature references and sources for data
Hazardous Substances Databank
Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)) and Appendix C, D
Manufacture SDS.


16.4 Further information: Notice to Reader
To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.