Section 1: Product & Company Identification

Product Name: Brakleen® Brake Parts Cleaner (bulk)

Product Number (s): 05090, 05091, 05093, 75090, 75091

Product Use: Brake parts cleaner

Manufacturer / Supplier Contact Information:
In United States: CRC Industries, Inc.
885 Louis Drive
Warminster, PA 18974
www.crcindustries.com
1-215-674-4300 (General)
(800) 521-3168 (Technical)
(800) 272-4620 (Customer Service)

In Canada: CRC Canada Co.
2-1246 Lorimar Drive
Mississauga, Ontario L5S 1R2
www.crc-canada.ca
1-905-670-2291

In Mexico: CRC Industries Mexico
Av. Benito Juárez 4055 G
Colonia Orquídea
San Luis Potosí, SLP CP 78394
www.crc-mexico.com
52-444-824-1666

24-Hr Emergency – CHEMTREC: (800) 424-9300 or (703) 527-3887

Section 2: Hazards Identification

Emergency Overview

DANGER: Vapor Harmful.
As defined by OSHA’s Hazard Communication Standard, this product is hazardous.
Appearance & Odor: Colorless liquid, irritating odor at high concentrations

Potential Health Effects:

ACUTE EFFECTS:

EYE: May cause slight temporary eye irritation. Vapors may irritate the eyes at concentrations of 100 ppm.

SKIN: Short single exposure may cause skin irritation. Prolonged exposure may cause severe skin irritation, even a burn. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

INHALATION: Dizziness may occur at concentrations of 200 ppm. Progressively higher levels may also cause nasal irritation, nausea, incoordination, and drunkenness. Very high levels or prolonged exposure could lead to unconsciousness and death.

INGESTION: Single dose oral toxicity is considered to be extremely low. Swallowing large amounts may cause injury if aspirated into the lungs. This may be rapidly absorbed through the lungs and result in injury to other body systems.

CHRONIC EFFECTS: Repeated contact with skin may cause drying or flaking of skin. Excessive or long term exposure to vapors may increase sensitivity to epinephrine and increase myocardial irritability.

TARGET ORGANS: Central nervous system. Possibly liver and kidney.

Medical Conditions Aggravated by Exposure: None known.

See Section 11 for toxicology and carcinogenicity information on product ingredients.
Section 3: Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>CAS NUMBER</th>
<th>% by Wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene (PERC)</td>
<td>127-18-4</td>
<td>100</td>
</tr>
</tbody>
</table>

Section 4: First Aid Measures

Eye Contact: Immediately flush with plenty of water for 15 minutes. Call a physician if irritation persists.

Skin Contact: Remove contaminated clothing and wash affected area with soap and water. Call a physician if irritation persists. Wash contaminated clothing prior to re-use.

Inhalation: Remove person to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult give oxygen. Call a physician.

Ingestion: Do NOT induce vomiting. Call a physician immediately

Note to Physicians: Because rapid absorption may occur through lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. If burn is present, treat as any thermal burn, after decontamination. Exposure may increase myocardial irritability. Do not administer sympathomimetic drugs unless absolutely necessary. No specific antidote.

Section 5: Fire-Fighting Measures

Flammable Properties: As defined by OSHA, this product is a nonflammable liquid.

Flash Point: None (TCC)  
Autoignition Temperature: None

Upper Explosive Limit: None  
Lower Explosive Limit: None

Fire and Explosion Data:

Suitable Extinguishing Media: This material does not burn. Use extinguishing agent suitable for surrounding fire.

Products of Combustion: Hydrogen chloride, trace amounts of phosgene and chlorine

Explosion Hazards: Containers, when exposed to heat from fire, may build pressure and rupture.

Protection of Fire-Fighters: Firefighters should wear self-contained, NIOSH-approved breathing apparatus for protection against suffocation and possible toxic decomposition products. Proper eye and skin protection should be provided. Use water spray to keep fire-exposed containers cool and to knock down vapors which may result from product decomposition.

Section 6: Accidental Release Measures

Personal Precautions: Use personal protection recommended in Section 8. Do not breathe vapors.

Environmental Precautions: Take precautions to prevent contamination of ground and surface waters. Do not flush into sewers or storm drains.

Methods for Containment & Clean-up: Dike area to contain spill. Ventilate the area with fresh air. If in confined space or limited air circulation area, clean-up workers should wear appropriate respiratory protection. Recover or absorb spilled material using an absorbent designed for chemical spills. Place used absorbents into proper waste containers.
Section 7: Handling and Storage

Handling Procedures: Vapors of this product are heavier than air and will collect in low areas. Make sure ventilation removes vapors from low areas. Keep containers closed when not in use. Do not eat, drink or smoke while using this product. Do not cut, drill or weld on or near empty containers. For product use instructions, please see the product label.

Storage Procedures: Store in a cool dry area out of direct sunlight. Containers should be tightly closed while in storage.

Aerosol Storage Level: NA

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines:

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>OSHA</th>
<th>ACGIH</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TWA</td>
<td>STEL</td>
<td>TWA</td>
</tr>
<tr>
<td>Tetrachloroethylene</td>
<td>100</td>
<td>N.E.</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>N.E. – Not Established</td>
<td>(c) – ceiling</td>
<td>(s) – skin</td>
</tr>
</tbody>
</table>

Controls and Protection:

Engineering Controls: Area should have ventilation to provide fresh air. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at the source, preventing dispersion into the general work area. Use mechanical means if necessary to maintain vapor levels below the exposure guidelines. If working in a confined space, follow applicable OSHA regulations.

Respiratory Protection: None required for normal work where adequate ventilation is provided. If engineering controls are not feasible or if exposure exceeds the applicable exposure limits, use a NIOSH-approved cartridge respirator with organic vapor cartridge. Air monitoring is needed to determine actual employee exposure levels. Use a self-contained breathing apparatus in confined spaces and for emergencies.

Eye/face Protection: For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear splash-proof goggles.

Skin Protection: Use protective gloves such as PVA, Teflon or Viton. Also, use full protective clothing if there is prolonged or repeated contact of liquid with skin.

Section 9: Physical and Chemical Properties

Physical State: liquid
Color: colorless
Odor: irritating odor
Odor Threshold: 50 ppm
Specific Gravity: 1.619
Initial Boiling Point: 250 F
Freezing Point: ND
Vapor Pressure: 13 mmHg @ 68 F
Vapor Density: 5.76 (air = 1)
Evaporation Rate: very fast
Solubility: 0.015 g/100 g @ 77 F in water
Section 10: Stability and Reactivity

Stability: Stable

Conditions to Avoid: Avoid direct sunlight or ultraviolet sources. Avoid open flames, welding arcs, and other high temperature sources which induce thermal decomposition.

Incompatible Materials: Avoid contact with metals such as: aluminum powders, magnesium powders, potassium, sodium, and zinc powder. Avoid unintended contact with amines. Avoid contact with strong bases and strong oxidizers.

Hazardous Decomposition Products: Hydrogen chloride, trace amounts of phosgene and chlorine

Possibility of Hazardous Reactions: No

Section 11: Toxicological Information

Long-term toxicological studies have not been conducted for this product. The following information is available for components of this product.

Acute Toxicity:

<table>
<thead>
<tr>
<th>Component</th>
<th>Oral LD50 (rat)</th>
<th>Dermal LD50 (rabbit)</th>
<th>Inhalation LC50 (rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>2629 mg/kg</td>
<td>&gt; 10 g/kg</td>
<td>5200 mg/kg/4H</td>
</tr>
</tbody>
</table>

Chronic Toxicity:

<table>
<thead>
<tr>
<th>Component</th>
<th>OSHA Carcinogen</th>
<th>IARC Carcinogen</th>
<th>NTP Carcinogen</th>
<th>Irritant</th>
<th>Sensitizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>No</td>
<td>Group 2A</td>
<td>Reasonably Anticipated</td>
<td>E (mild) / S (severe)</td>
<td>No</td>
</tr>
</tbody>
</table>

Reproductive Toxicity: No information available.
Teratogenicity: No information available.
Mutagenicity: Tetrachloroethylene: in vitro studies were negative animal studies were negative
Synergistic Effects: No information available.

Section 12: Ecological Information

Ecological studies have not been conducted for this product. The following information is available for components of this product.

Ecotoxicity: Tetrachloroethylene -- 96 Hr LC50 Rainbow Trout: 5.28 mg/L (static) 96 Hr LC50 Fathead minnow: 13.4 mg/L (flow-through)

Persistence / Degradability: Biodegradation under aerobic conditions is below detectable limits. Biodegradation may occur under anaerobic conditions. Biodegradation rate may increase in soil and/or water with acclimation.

Bioaccumulation / Accumulation: Bioconcentration potential is low (BCF less than 100).
Mobility in Environment: Potential for mobility in soil is medium.
Section 13: Disposal Considerations

Waste Classification: This product is a RCRA hazardous waste for toxicity with the following potential waste codes: U210, F001, F002, D039. (See 40 CFR Part 261.20 – 261.33)
Empty containers may be recycled. If this waste is mixed with other wastes, the mixture will be a hazardous waste.

All disposal activities must comply with federal, state, provincial and local regulations. Local regulations may be more stringent than state, provincial or national requirements.

Section 14: Transport Information

US DOT (ground): 05090 Consumer Commodity, ORM-D
05091 & 75091 Tetrachloroethylene, UN1897, 6.1, PGIII
05093 Tetrachloroethylene, UN1897, 6.1, PGIII, RQ

ICAO/IATA (air): 05090 Tetrachloroethylene, UN1897, 6.1, PGIII, Limited Quantity
05091 & 75091 Tetrachloroethylene, UN1897, 6.1, PGIII
05093 Tetrachloroethylene, UN1897, 6.1, PGIII

IMO/IMDG (water): 05090 Tetrachloroethylene, UN1897, 6.1, PGIII, Limited Quantity
05091 & 75091 Tetrachloroethylene, UN1897, 6.1, PGIII
05093 Tetrachloroethylene, UN1897, 6.1, PGIII

Special Provisions: Marine Pollutant

Section 15: Regulatory Information

U.S. Federal Regulations:

Toxic Substances Control Act (TSCA):
All ingredients are either listed on the TSCA inventory or are exempt.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):
Reportable Quantities (RQ’s) exist for the following ingredients: Tetrachloroethylene (100 lbs)

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center (800-424-8802) and to your Local Emergency Planning Committee.

Superfund Amendments Reauthorization Act (SARA) Title III:
Section 302 Extremely Hazardous Substances (EHS): None
Section 311/312 Hazard Categories: Fire Hazard No
Reactive Hazard No
Release of Pressure No
Acute Health Hazard Yes
Chronic Health Hazard Yes

Section 313 Toxic Chemicals: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:
Tetrachloroethylene (100%)
Product Name: Brakleen® Brake Parts Cleaner (bulk)  
Product Number(s): 05090, 05091, 05093, 75090, 75091

Clean Air Act:  
Section 112 Hazardous Air Pollutants (HAPs): tetrachloroethylene

U.S. State Regulations:

California Safe Drinking Water and Toxic Enforcement Act (Prop 65):  
This product may contain the following chemicals known to the state of California to cause cancer, birth defects or other reproductive harm: Tetrachloroethylene

Consumer Products VOC Regulations: This product cannot be sold for use in California and New Jersey. In other states with Consumer Products VOC regulations, this product is compliant as a Brake Cleaner.

State Right to Know:
New Jersey: 127-18-4  
Pennsylvania: 127-18-4  
Massachusetts: 127-18-4  
Rhode Island: 127-18-4

Canadian Regulations:

Canadian DSL Inventory: All ingredients are either listed on the DSL Inventory or are exempt.

WHMIS Hazard Class: D1B, D2A, D2B

European Union Regulations:


Additional Regulatory Information: None

Section 16: Other Information

<table>
<thead>
<tr>
<th>HMIS® (II)</th>
<th>NFPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health: 2</td>
<td>0</td>
</tr>
<tr>
<td>Flammability: 0</td>
<td>0</td>
</tr>
<tr>
<td>Reactivity: 0</td>
<td>0</td>
</tr>
<tr>
<td>PPE: B</td>
<td></td>
</tr>
</tbody>
</table>

Ratings range from 0 (no hazard) to 4 (severe hazard)

Prepared By: Michelle Rudnick  
CRC #: 491G  
Revision Date: 02/17/2009

Changes since last revision: MSDS reformatted to meet the requirements of the Canadian Controlled Products Regulations.

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. This information is accurate to the best of CRC Industries'
**Product Name:** Brakleen® Brake Parts Cleaner (bulk)

**Product Number(s):** 05090, 05091, 05093, 75090, 75091

Knowledge or obtained from sources believed by CRC to be accurate. Before using any product, read all warnings and directions on the label. For further clarification of any information contained on this MSDS consult your supervisor, a health & safety professional, or CRC Industries.

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstract Service</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>DOT</td>
<td>Department of Transportation</td>
</tr>
<tr>
<td>DSL</td>
<td>Domestic Substance List</td>
</tr>
<tr>
<td>g/L</td>
<td>Grams per Liter</td>
</tr>
<tr>
<td>HMIS</td>
<td>Hazardous Materials Identification System</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods</td>
</tr>
<tr>
<td>IMO</td>
<td>International Maritime Organization</td>
</tr>
<tr>
<td>lbs./gal</td>
<td>Pounds per gallon</td>
</tr>
<tr>
<td>LC</td>
<td>Lethal Concentration</td>
</tr>
<tr>
<td>LD</td>
<td>Lethal Dose</td>
</tr>
<tr>
<td>NA</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>ND</td>
<td>Not Determined</td>
</tr>
<tr>
<td>NIOSH</td>
<td>National Institute of Occupational Safety &amp; Health</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Association</td>
</tr>
<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>PMCC</td>
<td>Pensky-Martens Closed Cup</td>
</tr>
<tr>
<td>PPE</td>
<td>Personal Protection Equipment</td>
</tr>
<tr>
<td>ppm</td>
<td>Parts per Million</td>
</tr>
<tr>
<td>RoHS</td>
<td>Restriction of Hazardous Substances</td>
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<tr>
<td>STEL</td>
<td>Short Term Exposure Limit</td>
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<tr>
<td>TCC</td>
<td>Tag Closed Cup</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average</td>
</tr>
<tr>
<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System</td>
</tr>
</tbody>
</table>