Section 1 - Product and Company Information

Product Name               CRYSTAL VIOLET ACS REAGENT
Product Number              C6158
Brand                        SIAL
Company                      Sigma-Aldrich Canada, Ltd
Address                      2149 Winston Park Drive
                              Oakville ON L6H 6J8 CA
Technical Phone:             9058299500
Fax:                         9058299292
Emergency Phone:             800-424-9300

Section 2 - Composition/Information on Ingredient

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS #</th>
<th>SARA 313</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRYSTAL VIOLET</td>
<td>None</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS #</th>
<th>Percent</th>
<th>SARA 313</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRYSTAL VIOLET</td>
<td>548-62-9</td>
<td>90</td>
<td>No</td>
</tr>
<tr>
<td>ZINC FOIL</td>
<td>7440-66-6</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>MICHLER’S KETONE</td>
<td>90-94-8</td>
<td>0.2</td>
<td>Yes</td>
</tr>
<tr>
<td>MINERAL OIL</td>
<td>8042-47-5</td>
<td>3</td>
<td>No</td>
</tr>
</tbody>
</table>

Synonyms: Adergon * Aizen Crystal Violet * Aizen Crystal Violet Extra Pure * Aniline Violet * Aniline Violet Pyoktanine * Atmonil * Avermin * Axuris * Badil * Basic Violet 3 * Basic Violet BN * Bismuth Violet * Blaues pyoktanin (German) * Brilliant Violet 5B * Calcozine Violet C * Calcozine Violet 6BN * C.I. 42555 * C.I. Basic Violet 3 * Crystal Violet * Crystal Violet 6B * Crystal Violet 0 * Crystal Violet 5BO * Crystal Violet 6BO * Crystal Violet 10B * Crystal Violet AO * Crystal Violet AON * Crystal Violet BP * Crystal Violet BPC * Crystal Violet Chloride * Crystal Violet Extra Pure * Crystal Violet Extra Pure APN * Crystal Violet Extra Pure APNX * Crystal Violet FN * Crystal Violet HL2 * Crystal Violet Pure DSC * Crystal Violet Pure DSC Brilliant * Crystal Violet SS * Crystal Violet Technical * Crystal Violet USP * Gentersal * Gentian Violet * Gentianviolet (German) * Gentiaverm * Genticid * Gentioketten * Hectograph Violet SR * Hecto Violet R * Hexamethyl-p-rosaniline chloride * Hexamethyldimethyl-p-rosaniline hydrochloride * Hexamethyl Violet * Hidaco Brilliant Crystal Violet * Hidaco Crystal Violet * Kristall-violett (German) * Meroxyl * Meroxyan * Meroxyan-wander * Meroxyll-wander * Methylrosanilinchlorid (German) * Methylrosaniline chloride * Methylrosanilinum chloratum * Methyl Violet 5BNO * Methyl Violet
Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Toxic. Dangerous for the environment.  
May cause cancer. Harmful if swallowed. Irritating to respiratory system and skin. Risk of serious damage to eyes. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
Calif. Prop. 65 carcinogen.

HMIS RATING
HEALTH: 6  
FLAMMABILITY: 0  
REACTIVITY: 0

NFPA RATING
HEALTH: 2  
FLAMMABILITY: 0  
REACTIVITY: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

DERMAL EXPOSURE
In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT
N/A

AUTOIGNITION TEMP
N/A

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or
appropriate foam.

**FIREFIGHTING**

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.

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**Section 6 - Accidental Release Measures**

**PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL**

Evacuate area.

**PROCEDURE(S) OF PERSONAL PRECAUTION(S)**

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. Wear disposable coveralls and discard them after use.

**METHODS FOR CLEANING UP**

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

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**Section 7 - Handling and Storage**

**HANDLING**

User Exposure: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

**STORAGE**

Suitable: Keep tightly closed.

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**Section 8 - Exposure Controls / PPE**

**ENGINEERING CONTROLS**

Use only in a chemical fume hood. Safety shower and eye bath.

**PERSONAL PROTECTIVE EQUIPMENT**

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

**GENERAL HYGIENE MEASURES**

Wash contaminated clothing before reuse. Wash thoroughly after handling.

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**Section 9 - Physical/Chemical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Physical State: Solid</td>
<td></td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Light blue</td>
<td></td>
</tr>
<tr>
<td><strong>Form</strong></td>
<td>Fine crystals</td>
<td></td>
</tr>
<tr>
<td><strong>Molecular Weight</strong></td>
<td>407.99 AMU</td>
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<tr>
<td><strong>pH</strong></td>
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<tr>
<td><strong>BP/BP Range</strong></td>
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</table>
Table of Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP/MP Range</td>
<td>173 °C</td>
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<tr>
<td>Freezing Point</td>
<td>N/A</td>
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<tr>
<td>Vapor Pressure</td>
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<tr>
<td>Vapor Density</td>
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</tr>
<tr>
<td>Saturated Vapor Conc.</td>
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<tr>
<td>SG/Density</td>
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<tr>
<td>Bulk Density</td>
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<tr>
<td>Odor Threshold</td>
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<tr>
<td>Volatile%</td>
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<tr>
<td>VOC Content</td>
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<td>Solvent Content</td>
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<tr>
<td>Evaporation Rate</td>
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<tr>
<td>Viscosity</td>
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<tr>
<td>Surface Tension</td>
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<tr>
<td>Partition Coefficient</td>
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<tr>
<td>Decomposition Temp.</td>
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<tr>
<td>Flash Point</td>
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<tr>
<td>Explosion Limits</td>
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<td>Flammability</td>
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<tr>
<td>Autoignition Temp</td>
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<td>Refractive Index</td>
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<tr>
<td>Optical Rotation</td>
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<tr>
<td>Miscellaneous Data</td>
<td>N/A</td>
</tr>
<tr>
<td>Solubility</td>
<td>Solvent: Clear 5 mg/ml EtOH</td>
</tr>
</tbody>
</table>

N/A = not available

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Strong oxidizing agents, Strong reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE
Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes severe eye irritation.
Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion: Harmful if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE
Nausea, headache, and vomiting. Prolonged exposure can cause:

TOXICITY DATA

Oral Rat
420 mg/kg LD50
Intraperitoneal Rat
8900 UG/KG
LD50

Oral Mouse
96 mg/kg
LD50

Intraperitoneal Mouse
5100 UG/KG
LD50

Oral Rabbit
150 mg/kg
LD50

Intraperitoneal Rabbit
5 MG/KG
LD50

Intraduodenal Rabbit
160 MG/KG
LD50

IRRITATION DATA

Skin
Human
3 mg
3D
I
Remarks: Mild irritation effect

Skin
Human
2 mg
2D
I
Remarks: Mild irritation effect

Skin
Guinea pig
6 mg
3D
I

CHRONIC EXPOSURE - CARCINOGEN
Result: This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Species: Rat
Route of Application: Oral
Dose: 10950 MG/KG
Exposure Time: 2Y
Frequency: C
Result: Endocrine: Thyroid tumors. Tumorigenic: Carcinogenic by RTECS criteria.

Species: Mouse
Route of Application: Oral
Dose: 25750 MG/KG
Exposure Time: 2Y
Frequency: C

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 100 MG/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)

Species: Rat
Dose: 100 MG/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Specific Developmental Abnormalities: Other developmental abnormalities.

Species: Rabbit
Dose: 7 MG/KG
Route of Application: Oral
Exposure Time: (6-19D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

CHRONIC EXPOSURE - MUTAGEN

Result: May alter genetic material.

Species: Human
Dose: 10 UMOL/L
Cell Type: HeLa cell
Mutation test: DNA inhibition

Species: Human
Dose: 500 UG/L
Cell Type: HeLa cell
Mutation test: Cytogenetic analysis

Species: Human
Dose: 500 UG/L
Cell Type: lymphocyte
Mutation test: Cytogenetic analysis

Species: Rat
Dose: 10 NMOL/L
Cell Type: liver
Mutation test: DNA inhibition

Species: Mouse
Dose: 1 MG/KG
Cell Type: lymphocyte
Mutation test: DNA damage
Species: Hamster  
Dose: 500 UG/L  
Cell Type: ovary  
Mutation test: Cytogenetic analysis

Species: Mammal  
Dose: 10 PPH  
Cell Type: lymphocyte  
Mutation test: DNA

Species: Mammal  
Dose: 500 UG/L  
Cell Type: Other cell types  
Mutation test: Cytogenetic analysis

Species: Non-mammalian  
Dose: 500 UG/L  
Cell Type: Other cell types  
Mutation test: Cytogenetic analysis

Mutation test: Histidine reversion (Ames)

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat  
Dose: 40 MG/KG  
Route of Application: Oral  
Exposure Time: (6-15D PREG)  
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Species: Rabbit  
Dose: 7 MG/KG  
Route of Application: Oral  
Exposure Time: (6-19D PREG)  
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations. (DN) Requires special label: "Contains a substance which is regulated by Danish work environmental law due to the risk of carcinogenic properties."

Section 14 - Transport Information

DOT

Proper Shipping Name: None  
Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA

Proper Shipping Name: Environmentally hazardous
substance, solid, n.o.s  
IATA UN Number: 3077  
Hazard Class: 9  
Packing Group: 3

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION
Symbol of Danger: T-N  
Indication of Danger: Toxic. Dangerous for the environment.  
R: 45-22-41-50/53  
Risk Statements: May cause cancer. Harmful if swallowed. Risk of serious damage to eyes. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
S: 53-26-39-45-60-61  
Safety Statements: Avoid exposure - obtain special instructions before use. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Toxic. Dangerous for the environment.  
Risk Statements: May cause cancer. Harmful if swallowed. Irritating to respiratory system and skin. Risk of serious damage to eyes. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
Safety Statements: Avoid exposure - obtain special instructions before use. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wear eye/face protection. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.  

UNITED STATES REGULATORY INFORMATION  
SARA LISTED: Yes  
NOTES: This product is or contains a component that is subject to SARA313 reporting requirements.  
TSCA INVENTORY ITEM: Yes

UNITED STATES - STATE REGULATORY INFORMATION  
CALIFORNIA PROP - 65  
California Prop - 65: This product is or contains chemical(s) known to the state of California to cause cancer.

CANADA REGULATORY INFORMATION  
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.  
DSL: Yes  
NDSL: No

Section 16 - Other Information
DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.