

CHLORENDIC ANHYDRIDE

PE1+ GRADE



Chlorendic Anhydride is a solid, reactive flame retardant with an unusually stable chlorinated bicyclic structure. The PE1+ grade is a higher purity grade than standard technical grade material offering improved color for applications where color is critical.

SPECIFICATIONS

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| Assay, % min | 95 |
| Chlorendic acid, % max | 3 |
| Color (polyester), Gardner, max | 1 |
| Hexachlorocyclopentadiene, % max | 0.02 |
| Maleic anhydride, % max | 1 |

PHYSICAL and CHEMICAL PROPERTIES

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|----------------------------------|-------------------------|
| Appearance | White crystalline solid |
| Chlorine, % | 54.5 |
| Free Volatiles, % max | 1 |
| Iron, ppm | 1 |
| Molecular weight (average) | 371 |
| Odor | none |
| Solution Color*, APHA, max | 100 |

**Solution 90 grams in 51 ml of 1:1 Methanol:Acetone*

SAFE HANDLING PROCEDURES

Personal Protective Equipment - All personnel involved in the manufacture, transfer, loading and unloading of Chlorendic Anhydride are required to wear specific protective clothing and safety equipment. Standard gear consists of hard hat, goggles, gloves, safety shoes/boots, and long sleeve coveralls. In areas where the dry product can produce a dusty environment, a full-face piece cartridge respirator is required. When dusty atmosphere exceeds $1\text{mg}/\text{m}^3$ a full-face piece air supplied respirator is recommended. It is recommended that the employees remove all safety gear and shower at the end of the workday.

Chlorendic Anhydride reacts with water and/or sunlight to form Chlorendic Acid. The National Toxicology Program (NTP) has concluded that Chlorendic acid showed clear evidence of carcinogenicity (cancer) in animals. The International Agency for Research on Cancer (IARC) has given Chlorendic Acid an overall evaluation of 2B (possibly carcinogenic).

Chlorendic Anhydride may be harmful if swallowed, irritating to eyes, skin and respiratory tract and may cause allergic skin reaction. No exposure limits have been set for Chlorendic Anhydride.

First-Aid Procedures

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| Eyes | Immediately flush with plenty of water for at least 15 minutes. Get medical attention immediately. |
| Skin | Immediately wash with soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Destroy contaminated shoes. |
| Ingestion | Induce vomiting as directed by medical personnel. Get medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. |
| Inhalation | Remove to fresh air/give artificial respiration, if Breathing is difficult, give oxygen. GET MEDICAL ATTENTION. |

IN ALL CASES OF EMERGENCY, CONTACT A PHYSICIAN

CHLORENDIC ANHYDRIDE STORAGE

While Chlorendic Anhydride is not flammable, the occluded solvent trapped within the crystal may ignite. Protect against static buildup and/or use in an inert atmosphere.

Chlorendic Anhydride degrades to Chlorendic Acid in the presence of water and/or sunlight. Store in cool, ventilated area away from sources of ignition. Keep away from direct sunlight or strong incandescent light. Keep drums and bags closed to prevent the absorption of water.

Recommended material of construction for equipment that contacts Chlorendic Anhydride is 316 stainless steel.

CHLORENDIC CONTAINERS - UNLOADING

Falling product can generate a static charge. Protect against the hazards associated with potential static discharge by using an inert atmosphere.

250 lb drums – Remove seal and wire-tie on drum rim. Pull locking lever down and pull handle out to release ring. Remove ring and lid from the drum. The Chlorendic Anhydride is sealed in an inner bag. Remove the wire tie to open the bag. Scoop or shovel product out of the drum. If entire contents are not to be used from the drum, reseal the inner bag tightly and replace top on drum to prevent the absorption of water.

500kg and 2000lb Bags – Support bag with the lifting straps. Pull inner liner through top nozzle and attach to secure structure to minimize the likelihood of the inner liner slipping out of the outer bag with the product. Untie the string on the bottom of the bag and pull the bottom nozzle out. With the nozzle properly positioned, untie second string to release product.

25kg Bags – The 25kg bag is simply a Kraft style bag with an inner liner. Tear or cut a hole in the outer bag an inner liner, and pour out product.

REGULATORY INFORMATION

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| <i>Europe</i> | |
| EINECS Status | Listed: 1,4,5,6,7,7-Hexachloro-8,9,10-trinorborn-5-ene-2,3-dicarboxylic anhydride EC # 204-077-3 |
| <i>Americas</i> | |
| TSCA Inventory | Listed: 4,7-Methaneisobenzofuran-1,3-dione,4,5,6,7,8,8-hexchloro-3a,4,7,7-a-tetrahydro CAS# 115-27-5 |
| Canadian DSL | Listed: 4,7-Methaneisobenzofuran-1,3-dione,4,5,6,7,8,8-hexchloro-3a,4,7,7-a-tetrahydro |
| <i>Pacific Rim</i> | |
| Australian Inventory (AICS) | Listed: 4,7-Methaneisobenzofuran-1,3-dione,4,5,6,7,8,8-hexchloro-3a,4,7,7-a-tetrahydro |
| Chinese Inventory of Existing Chemical Substances (IECSC) | Listed: 4,7-Methaneisobenzofuran-1,3-dione,4,5,6,7,8,8-hexchloro-3a,4,7,7-a-tetrahydro Chinese Section # III |
| Japan MITI/MHW Chemical Substances Control Inventory for Existing and New Chemical Substances | Listed, Chlorendic anhydride ENCS # (4)-621 |
| Korean Existing Chemicals Inventory (KECI) | Listed: 4,5,6,7,8,8-hexchloro-3a,4,7,7-a-tetrahydro-4,4-methanoisobenzofuran-1,3-dione Korean Gazette # MOL92-14, KE-18418 |
| Philippines Inventory (PICCS) | Listed: Chlorendic anhydride |

The information in this data sheet is, to the best of our knowledge, true and accurate. The representations about the product are based upon test results achieved under laboratory practices supervised and controlled by Velsicol Chemical LLS. Since formulations, preparation or conditions of use may vary, Velsicol is unable to guarantee the same performance as indicated.

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Chlorendic Anhydride PE 1 Plus Grade

Velsicol Chemical LLC
10400 W. Higgins Road, Suite 303
Rosemont, Illinois 60018 USA
Phone (847) 813-7888 or Toll-Free (877) 847-8350
Fax (847) 768-3227
www.velsicol.com