

Material Safety Data Sheet

Antioxidant 1035

1. PRODUCT IDENTIFICATION

Trade Name: Thiodiethylene bis[3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate]
 (AO-1035)

Formula: C₃₈H₅₄O₄S

Health:	1
Flammability:	1
Reactivity:	0
Personal Protection:	X

HMIS RATING

Important Use Information:

This material is not intended for use in products for which prolonged contact with mucous membranes or abraded skin, body fluids, or abraded skin, or implantation within the human body, is specifically intended, unless the finished product has been tested in accordance with national and international applicable safety regulations. Because of the wide range of such potential uses, Network Performance Additives is not able to recommend this material as safe and effective for such uses and assumes no liability for such uses.

2. COMPOSITION & INFORMATION ON INGREDIENTS

O S H A	Cas No.	Chemical Reactivity	Exposure Limits					Carcinogen Status		
			ACGIH		OSHA		MFR	IARC	NTP	OSHA
			TWA	STEL	PEL	STEL				
*	41484-35-9		Not Estab-lished	Not Estab-lished	Not Estab-lished	Not Estab-lished	10 mg/m ³	Not re-viewed	Not re-viewed	Not re-viewed
	Chemical Name:	Thiodiethylene bis[3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate]								
	Common Name:	AO-1035								
	Concentration	100 wt %								

* = NOT OSHA Hazardous Ingredient

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: White to off-white powder

Flammability: Use of proper grounding techniques are recommended when emptying this product from containers weight more than 1 pound. A build-up of Hazardous electrostatic charges may cause a flash fire or explosion when the contents are emptied into a flammable atmosphere. See Section 7.

Environmental: This product is moderately toxic to aquatic organisms. Release to the environment is to be avoided.

Health: This product has no known adverse effect on human health.

Disposal: Sweep or shovel spilled material and place into a sealed container. Pre-wet the material to prevent dust build-up. Dispose in accordance with local, state and federal regulations. Incineration is recommended. This product is not a hazardous waste under RCRA.

Primary Route of Entry: Dermal, inhalation, ingestion, eyes

Eye: This product is not expected to cause eye irritation.

Skin: This product presents little or now immediate hazard to people if spilled or released.

Swallowing: Small amounts, if swallowed, are not expected to cause injury; avoid swallowing.

Inhalation: This product is considered to present little risk if inhaled.

4. FIRST AID MEASURES

First Aid for Swallowing:	If swallowed, give at least 3-4 glasses of water, but DO NOT induce vomiting. If vomiting occurs naturally, have individual lean forward to reduce the risk of aspiration. Do not give anything by mouth to an unconscious or convulsing person.
First Aid for Skin:	Following skin contact, wipe away excess material with a dry towel. Then wash affected areas with plenty of water and soap, if available, for several minutes. Get medical attention if irritation occurs.
First Aid for Inhalation:	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops, or if breathing becomes difficult. If not breathing give artificial respiration.
First Aid for Eye:	Following eye contact, flush eyes with plenty of water for several minutes. Get medical attention if irritation occurs.
Note to Physician:	None known.

5. FIRE FIGHTING MEASURES

Flash Point:	140°C
Extinguishing Media:	Carbon dioxide, dry chemical, foam, water mist
Unusual Hazards:	The product can form an explosive dust/air mixture. Avoid dust formation and control ignition sources. Employ grounding, venting and explosion relief provisions in accord with accepted engineering practices in process operations capable of generating dust and/or static electricity.
Fire Fighting Instructions:	Use self-contained breathing apparatus and protective suit.
Hazardous Combustion Products:	Burning may produce toxic combustion products.

6. ACCIDENTAL RELEASE MEASURES

Spill or Release Procedures: Sweep or vacuum and place in sealable container for disposal. Wear protective equipment. Do not release material into the environment.

7. HANDLING AND STORAGE

Handling:	Wash thoroughly after handling and before eating, drinking, or using tobacco products. In accordance with good industrial practice, handle with care and avoid unnecessary personal contact. Avoid contact with eyes and prolonged or repeated skin contact. Do not inhale, taste or swallow. Use only with adequate ventilation. For industrial use ONLY.
Storage:	Keep container tightly closed when not in use and during transport.

Explosion Hazards:
• *For All Packages:*

DANGER~ EXPLOSION RISK

- Combustible powder
- Risk of explosion if an air-dust mixture forms
- Avoid creating dusty conditions
- Empty only into grounded containers
- If container is larger than 550 US gallons (2m³) in volume, or when flammable solvents are present, the container must be inverted(with inert gas flush) or the system otherwise designed to prevent or contain an explosion-see expert advise.

- *In addition, for products packaged in fused-lined (coated) fiber drums, fiber drums with conductive liner, steel drums, steel pails or bulk bags, the following instructions apply:*
 - Always ground the package before emptying
- *For products that have external protective packaging, discharge product only from the primary product packaging, NOT from external containers or its liner.*

The user is responsible for designing a system that safely handles solid additives and to ensure proper training of employees in the system's use.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering Controls:	Work in well-ventilated areas. There are no OSHA or ACGIH exposure guidelines available for component(s) in this product.
General Protection:	Wear coveralls.
Eye/Face Protection:	Wear safety glasses or chemical goggles to protect against dust particles.
Skin Protection:	Wear appropriate protective clothing and gloves to prevent skin exposure to dust particles.
Respiratory Protection:	In operations where dusts are generated, wear a NIOSH-approved dust respirator as needed to mitigate exposure.

There are no OSHA or ACGIH exposure guidelines available for the component(s) in this product.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Physical Form:	Solid
Appearance:	White to off-white powder
Boiling Point:	Not Applicable
Evaporation Rate:	Not Applicable
Freezing/Melting Point:	63 - 78°C
Decomposition Temperature:	> 350°C [$>662^{\circ}\text{F}$]
Specific Gravity:	~ 1.00 [$\text{H}_2\text{O} = 1$]
Vapor Density:	Not Applicable
% Volatile:	< 0.5%
Vapor Pressure:	~ 8×10^{-12} mm HG at 20°C
pH:	7.97 (suspension)
Solubility:	< 0.01wt% in water at 20°C (68°F)
Octanol/Water Coefficient:	Log Po/w = > 6
Autoignition:	> 370°C [698°F] BAM (fluidized dust method)
Flash Point:	140°C [284°F] Pensky-Martens Closed Cup (ASTM D-93)

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable
Conditions to Avoid:	Avoid static discharge
Incompatibility with other Materials:	Strong oxidizing agents, strong acids, strong bases
Hazardous Decomposition Products:	Thermal decomposition and burning may produce carbon monoxide, carbon dioxide, nitrogen oxides and other toxic compounds. NO decomposition expected under normal storage conditions.

Hazardous Reactions/Polymerization:None expected.

11. TOXICOLIGICAL INFORMATION

Acute Oral Toxicity:	LD50 (Rats): > 5000 mg/kg
Acute Dermal Toxicity:	LD50 (Rabbits): > 3000 mg/kg
Acute Inhalation Toxicity:	LC50 (Rats): > 3.5 mg/m ³ air for a 4-hour dust exposure.
Skin Irritation:	(Humans) Not an irritant
Eye Irritation:	(Rabbits) Not an irritant
Skin Sensitization:	(Guinea pigs) Maximum Not a sensitizer RIPT (humans). RIPT (Humans): Possible sensitizer in humans.
Mutagenicity:	Ames test: Non-mutagenic Nucleus anomaly test (Chinese hamsters): Non-mutagenic
Reproductive Toxicity:	Not Determined.
Chronic Toxicity:	Not determined
Teraogenicity:	Not determined
Neurotoxicity:	Not determined
Subacute Toxicity:	Not determined
Subchronic Toxicity:	90-Day study (Dogs): The test substance was administered in the diet to Beagle dogs at concentrations of 0, 10,000, 20,000 and 30,000 ppm. There were no

effects on body weight gains, food consumption, behavioral reactions, mortality, hematology, urinalysis, or gross and histopathologic examinations. Serum alkaline phosphatase levels were elevated in females of the top-dose group. The NOEL was considered to be 20,000 ppm.

3-month study. (Rats): The test substance was administered in the diet to rats for 3 months at concentrations of 0, 60, 200, and 2,000 ppm. The test substance showed a hepatotoxic effect, manifested by increased liver weights in the higher dose group animals and a minimal hypertrophy in the centrilobular region of the liver. The NEL in this study was 60 ppm, equivalent to 4.4-4.5 mg/kg/day.

Carcinogenicity (IARC, NTP, OSHA, ACGIH):

None of the components in this product at concentrations greater than 0.1% are listed by IARC, NTP, OSHA, or ACGIH as a carcinogen.

Absorption/Distribution/Excretion Metabolism: Not determined

Additional Information: Not determined

12. ECOLOGICAL INFORMATION

Acute Toxicity to Fish: LC50: >61 ppm (Rainbow trout) and > 57 ppm 96 hour (Zebra fish)/

Acute Toxicity to Invertebrates: Daphnia magna, 24-hour, EC50: 4.7 ppm

Acute Toxicity to Algae: Green algae, 0-72 hour, EC50: = 41 ppm

Toxicity to Sewage Bacteria: Inhibitory concentration on respiration of aerobic wastewater bacteria: IC20, IC50, IC80: >100 ppm

Chemical Oxygen Demand: Not determined

Biochemical Oxygen Demand (BOD): Not determined

Total Oxygen Demand: Not determined

Activated Sludge Respiration Inhalation Test: Not determined

Biodegradability: Biodegradability in modified Zahn-Wellens test: Not inherently biodegradable, 10%: no sorption on sludge
Aerobic sewage OECD coupled units test: Biological elimination of 44.1%; whether this result implies primary elimination or mineralization cannot be answered with certainty. If DOC values of blank and test unit are compared, it appears that ~ 40% of product was mineralized with would mean inherent biodegradability.

Bioaccumulation: Not determined

Additional Environmental Data: Not determined

13. DISPOSAL CONSIDERATIONS

Disposal Considerations: Incinerate in a chemical incinerator equipped with an after-burner and scrubber. Follow all federal, state and local regulations.

14. TRANSPORT INFORMATION

U.S. Department of Transportation (DOT): Not regulated for this mode of transport.

International Maritime Dangerous Goods (IMDG): Not regulated for this mode of transport.

International Air Transportation Authority (IATA): Not regulated for this mode of transport.

15. REGULATORY INFORMATION:

Chemical Weapons Convention (CWC):

This product does not contain any chemicals listed under the Chemical Weapons Convention Schedule of Chemicals.

US Federal Regulations:

OSHA Hazardous Substance: This material is classified as NOT hazardous under OSHA regulations.

Clean Air Act – Hazardous Air Pollutants (HAP):

This product contains no hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40CFR 61).

Clean Air Act – Volatile Organic Compounds (VOC): This product does not contain any SOCM Intermediate or Final Volatile Organic compounds (VOC) as defined by the U.S. Clean Air Act Section 111 (40 CFR 60.489).

Clean Air Act – Ozone Depleting Substances (ODS):

This product does NOT contain nor was manufactured with any Class I or Class II ozone depleting substances (ODS), as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, APP. A + B).

Clean Water Act – Priority Pollutants (PP):

This product contains no priority pollutants listed under the U.S. Clean Water Act Section 307 (2)(1) Priority Pollutant List (40 CFR 401.15).

FDA: Food Packaging Status:

This product has been cleared by the FDA for use in food packaging and/or other applications as an indirect food additive. Call for further detailed information.

Occupational Safety and Health Act (OSHA):

This product is NOT considered to be a hazardous chemical under the OSHA Hazard Communication Standard (29CFR 1910.1200).

Resource Conservation and Recovery Act (RCRA):

This product is NOT considered to be a hazardous waste under RCRA (40 CFR 261.21).

SARA Title III: Section 302 – Extremely Hazardous Substances (EHS):

This product contains no chemicals regulated under Section 302 (40 CFR 355) as extremely hazardous substances.

SARA Title III: Section 304 – CERCLA Hazardous Substances:

This product does not contain any components regulated under Section 304 (40 CFR 302) as hazardous chemicals for emergency release notification ("CERCLA" list).

SARA Title III: Section 311/312 – Hazard Communication Standard (HCS):

This product is regulated under Section 311-312 (40 CFR 370).

SARA Title III: Section 313 Toxic Chemical List (TCL):

This product does not contain any component(s) listed on the Section 313 Toxic Chemical list.

TSCA Section 5(e) – Consent Order / SNUR:

This product is not subject to a section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 5(f):

This product is not subject to a Section 5(f)/6(a) rule.

TSCA Section 8(b) – Inventory Status:

All component(s) comprising this product are either exempt or listed on the TSCA inventory.

TSCA Section 12(b) – Export Notification:

This product does not contain any component(s) subject to Section 12(b) export notification.

State Regulations:

California Proposition 65:

This product does not contain any chemicals currently on the California list of Known Carcinogens and Reproductive Toxins.

Pennsylvania Right-to-Know:

This product does not contain any component(s) that are subject to Pennsylvania Right-to-Know disclosure requirement.

16. OTHER INFORMATION

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, NO guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein.

Information Contact: For technical information contact your technical sales representative. For additional health / safety / regulatory information, contact Product Safety at (888) 291-1743.