

BHT

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Trade name	BHT		
Synonyms	Butylated Hydroxytoluene; 2,6-di-tert-butyl-4-methyl phenol; 2,6-di-tert-butyl-p-cresol		
Manufacturer/Supplier	Merisol Antioxidants LLC		
Address	292 State Route 8 Oil City, PA, 16301		
Telephone	CHEMTREC North America Transportation Emergency (24-hr)		(800) 424-9300
	CHEMTREC World Wide		(703) 527-3887
	Other Emergencies (24-hr)		(814) 677 2028
	MSDS and Product Information (8:00am-4:30pm CST)		(814) 677 2028
	Health and Safety Information (8:00am-4:00pm CST)		(814) 677 2028

SECTION 2 COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Components</u>	<u>CAS-No.</u>	<u>Weight %</u>
BHT	128-37-0	>=99

See Section 8 for Exposure Guidelines and Section 15 for Regulatory Classifications.

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance White Solid at room temperature. Colorless liquid when melted.

Odor Mild.

Warnings/Precautions **WARNING!** MAY FORM COMBUSTIBLE DUST CONCENTRATIONS IN AIR (DURING PROCESSING).

CAUTION! MAY CAUSE EYE, SKIN AND RESPIRATORY IRRITATION. Contact with hot product will cause thermal burns. Provide adequate ventilation. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Material will burn in a fire. Take measures to prevent the build up of electrostatic charge.

Environmental precautions Do not flush into surface water or sanitary sewer system. Product is slightly soluble in water. According to the results of tests of biodegradability this product is not readily biodegradable. BHT is considered to have a moderate to high bioaccumulation potential (230-2500 (fish, 56-day test)) in aquatic species.

POTENTIAL HEALTH EFFECTS

Skin Slightly irritating.

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Eyes Contact with eyes may cause irritation.

Inhalation May cause irritation of respiratory tract.

Ingestion Harmful if swallowed.

Additional advice Product dust may be irritating to eyes, skin and respiratory system.

(See Section 11 for Toxicological Information)

SECTION 4 FIRST AID MEASURES

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, consult a specialist.

Skin contact Wash off with soap and plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.

Inhalation Remove to fresh air. In the case of inhalation of aerosol/mist consult a physician if necessary.

Ingestion If accidentally swallowed obtain immediate medical attention. If conscious, drink plenty of water. Do not induce vomiting.

Additional advice There is no specific antidote. Treatment consists of support of respiratory and cardiovascular functions.

SECTION 5 FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

(Also see Section 9 for Dust Explosion Risk Data)

Flash point 118 °C 244 °F closed cup

Auto-ignition temperature 470 °C 878 °F

Flammable limits in air % by volume **Lower explosion limit:** No data available.
Upper explosion limit: No data available.

Fire and explosion Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source, is a potential dust explosion hazard. Risks of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust, e.g. on floors and ledges. Material will burn in a fire.

Extinguishing media Water spray or fog, foam, dry chemical, CO₂.

Fire fighting instructions Wear self-contained breathing apparatus and protective suit.

Further information Evacuate personnel to safe areas. Stop source of fuel if possible. Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6 ACCIDENTAL RELEASE MEASURES

- Steps to be taken in case of spill or leak** Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentrations. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Non-sparking tools should be used. Remove all sources of ignition. Use personal protective equipment. Prevent further leakage or spillage. Sweep up and shovel into suitable containers for disposal. Do not flush with water. Non-disposable equipment should be thoroughly decontaminated with soap and water. Do not flush into surface water or sanitary sewer system.
- Spill precautions** Do not contaminate any lakes, streams, ponds, groundwater or soil.
- Reporting Requirements** Composition and extent of any spill should be evaluated against local regulations and reported to the proper agencies, if necessary.

SECTION 7 HANDLING AND STORAGE

- Safe handling advice** BHT dust may form an explosive mixture in air. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions such as electrical bonding and grounding or inert atmospheres. Avoid contact with skin and eyes. Do not breathe vapors/dust. Handle in accordance with good industrial hygiene and safety practices. Keep containers tightly closed in a dry, cool and well-ventilated place.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING MEASURES

It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks. Provide adequate ventilation. Ensure proper grounding of equipment. The type of protective equipment must be selected according to the concentration and amount of the substance at the specific workplace.

PERSONAL PROTECTIVE EQUIPMENT

- Eyes** When contact with liquid is possible, use a face shield and/or chemical splash goggles. Otherwise use safety glasses with side shields or goggles.
- Skin** Solvent-resistant gloves. Long sleeved clothing. Non-disposable equipment should be thoroughly decontaminated with soap and water.

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Inhalation Use an approved organic vapor/particulate air-purifying respirator to control dust or fumes exposure.

EXPOSURE GUIDELINES

<u>Components</u>	<u>Exposure limit(s)</u>
BHT	OSHA PEL (5 mg/m ³) OSHA regulates as Nuisance Dust (Nuisance Particulates). ACGIH TLV (8-hour) (2 mg/m ³) (inhalable aerosol and/or vapor) NIOSH TWA (10-hour) (10 mg/m ³)
PEL=	Permissible Exposure Limits
TLV=	Threshold Limit Value
EL=	Excursion Limit
TWA=	Time Weighted Average (8 hr.)
STEL=	Short Term Exposure Limit (15 min.)
WEEL=	Workplace Environmental Exposure Level

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Solid at room temperature. Colorless liquid when melted.
Color	White
Odor	Mild.
Form	Crystals, pellets, molten
Boiling point/range	265 °C 509 °F
Vapor pressure	< 0.01 mm Hg @ 20 °C
Vapor density	7.6
Solubility (water)	Slightly soluble 0.4 - 1.14 mg/l
Viscosity	3.45 cSt @ 80 °C 1.54 cSt @ 120 °C
Melting point/range	69 - 70 °C 156 - 158 °F
Density	1.01 g/cm ³ @ 25 °C
Log Kow	5.1

BHT Dust Explosion Risk Data

Maximum Explosion Pressure [Pm(bar)]	7-9
Maximum Rate of Pressure Rise [dP/dt (bar/s)]	800-1300
Kst [bar.m/s]	200-350
Minimum Ignition Energy [M.I.E. (mJ)]	10-25
Minimum Explosion Concentration [M.E.C. (g/m³)]	10-20

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SECTION 10 STABILITY AND REACTIVITY

Conditions to avoid Stable under normal conditions. Keep away from heat and sources of ignition.

Hazardous decomposition products Combustion products include carbon dioxide, carbon monoxide and possibly other unidentified organic compounds.

Incompatibility with other materials Incompatible with strong acids and oxidizing agents.

Hazardous polymerization Hazardous polymerization does not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Additional Remarks

BHT Low acute toxicity.

Eyes

BHT Irritating.

Skin

BHT Slightly irritating.

Acute dermal LD50 (rat): > 2,000 mg/kg

Ingestion

BHT Acute oral LD50 (rat): > 2,930 mg/kg

Repeated oral exposure of laboratory animals (rats and mice) at doses greater than 25 mg/kg/day resulted in growth depression and functional and histological changes to the lung, liver, kidneys, and thyroid.

Reproductive Effects

The only effects on reproduction in rats and mice were lower numbers of litters of ten or more pups at birth at doses of 100 mg/kg/day and above. During pregnancy, BHT had maternal effects on mice above oral doses of 240 mg/kg/day.

Carcinogenicity

BHT This product contains no carcinogenic substances.

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SECTION 12 ECOLOGICAL INFORMATION

Aquatic toxicity

BHT LC0 (Brachydanio rerio): 96 hours \geq 0.57 mg/l
EC0 (Daphnia magna): 48 hours \geq 0.17 mg/l
NOEC (S. subspicatus (algae)): 72 hours 0.4 mg/l
NOEC (Daphnia magna): 21 d 0.07 mg/l
(reproductive effects)

Biodegradation

Product is slightly soluble in water. According to the results of tests of biodegradability this product is not readily biodegradable. BHT is considered to have a moderate to high bioaccumulation potential in aquatic species.

Bioconcentration Factor (BCF)

BHT 230 - 2,500 ((fish) 56 d)
Accumulation in aquatic organisms is expected.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal methods Dispose of only in accordance with local, state, and federal regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

Empty containers Empty containers retain product residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Empty drums should be completely drained, triple-rinsed, properly bunged and promptly returned to a drum reconditioner, or properly disposed. Dispose of rinse water in accordance with local and national regulations.

SECTION 14 TRANSPORT INFORMATION

DOT description Not regulated in solid form; however, if shipped in molten form above 100 °C, use the following description: UN3257, Elevated temperature liquid, n.o.s., 9, PG III

IATA description not regulated

IMDG Description not regulated

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SECTION 15 REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

OSHA classification
Irritant

TSCA Inventory Listing

Components

CAS-No.

2,6-Bis(1,1-dimethylethyl)-4-methylphenol

128-37-0

SARA 302 Status

Components

CAS-No.

Weight %

Contains no chemicals subject to SARA 302 reporting.

SARA 311/312 Classification

"Immediate (acute) health hazard"

SARA 313 Chemical

Components

CAS-No.

Weight %

Contains no chemicals subject to SARA 313 reporting.

CERCLA Hazardous Substance

Components

CERCLA RQ

Weight %

Contains no chemicals subject to CERCLA.

INTERNATIONAL REGULATIONS

Workplace Hazardous Materials Information System (WHMIS) Classification

Toxic Material Causing Other Toxic Effects

Australian Inventory of Chemical Substances (AICS) Listing

Listed on the AICS.

Japanese Minister of International Trade and Industry (MITI) Inventory Listing

Listed on MITI.

Canadian Domestic Substance List (DSL) Inventory Listing

Listed on the DSL.

European Inventory of Existing Commercial Chemical Substances (EINECS) Listing

Listed on EINECS.

Korean Inventory List

Listed on the ECL.

China Inventory List

Listed on the China inventory.

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STATE REGULATIONS

California Safe Drinking Water Act (Prop 65) Listing Components

CAS-No.

Contains no chemical subject to California Prop 65.

SECTION 16 OTHER INFORMATION

HAZARD RATINGS

	<u>Health</u>	<u>Flammability</u>	<u>Reactivity</u>
HMIS	1	1	0
NFPA	1	1	0

Refer to NFPA 654, *Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids*, for safe handling.

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