SAFETY DATA SHEET

Section 1. Identification

Product identifier : VULKANOX BHT EU

Material Number : 57300471

Chemical name : 2,6-di-tert-butyl-p-cresol

Identified uses : Chemical industry

Supplier/Manufacturer : LANXESS Corporation
Product Safety & Regulatory Affairs
111 RIDC Park West Drive
Pittsburgh, PA 15275-1112
USA

For information: US/Canada (800) LANXESS
International +1 412 809 1000

In case of emergency : Chemtrec (800) 424-9300
International (703) 527-3887
Lanxess Emergency Phone (800) 410-3063.

Distributed by: TRInternational Inc.
600 Stewart Street
Suite 1801
Seattle, WA. 98101
Phone: 206-505-3500

Section 2. Hazards identification

HAZCOM Standard Status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Physical state : Solid.

Color : Colorless.

Classification of the substance or mixture : COMBUSTIBLE DUSTS
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Respiratory tract irritation] - Category 3

Hazard pictograms :

Signal word : Warning

Hazard statements : May form combustible dust concentrations in air. May cause respiratory irritation.

Hazard Not Otherwise Classified (HNOC) : None known.

Precautionary statements

Prevention : Use only in a well-ventilated area. Avoid breathing dust.

Response : Get medical attention if you feel unwell. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements : Keep container tightly closed. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Prevent dust accumulation. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink. COMBUSTIBLE DUSTS

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : 2,6-di-tert-butyl-p-cresol

Ingredient name	%	CAS number
Butylated Hydroxy Toluene (BHT)	>99.8	128-37-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of first aid measures

Eye contact : Continue to rinse for at least 10 minutes. No known significant effects or critical hazards.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : May cause respiratory irritation.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Skin contact : No specific data.

Ingestion : No specific data.

Potential chronic health effects

No known significant effects or critical hazards.

Notes to physician : Treat symptomatically. No specific treatment.

Protection of first-aiders : No special measures required.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical powder.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Fine dust clouds may form explosive mixtures with air.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up : Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. Remove mechanically by a method that minimizes the generation of airborne dust (vacuum cleaner, wet mopping, etc.) Ensure vacuum cleaners are approved for explosible dusts. Prevent entry into sewers, water courses, basements or confined areas.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Do not ingest. Avoid contact with eyes, skin and clothing. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container. Remove contaminated clothing and protective equipment before entering eating areas. Workers should wash hands and face before eating, drinking and smoking. Put on appropriate personal protection equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Use non-sparking tools and equipment. Consult National Fire Protection Association (NFPA) 654 Standard for the Prevention of Fire and Dust Explosions from

Section 7. Handling and storage

the Manufacturing, Processing, and Handling of Combustible Particulate Solids for details on the safe handling and equipment design.

Conditions for safe storage : Do not store above the following temperature: 50°C (122°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Empty containers retain product residue and can be hazardous. Do not reuse container. Minimize dust generation and accumulation, especially on elevated surfaces (e.g., roof beams and trusses, ventilation ducts, wall sills). A dust layer just 1/32nd of an inch(0.793 mm) deep on elevated surfaces may create a dust cloud explosion hazard.

Section 8. Exposure controls/personal protection

Occupational exposure limits

Ingredient name	Exposure limits
Butylated Hydroxy Toluene (BHT)	**ACGIH TLV (United States, 3/2012).** TWA: 2 mg/m³ 8 hours. Form: Inhalable fraction and vapor

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Appropriate engineering controls : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Personal protection

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection : NIOSH approved, air-purifying particulate respirator with N-95 filters.

Skin protection : Gloves

Eye/face protection : safety glasses with side-shields

Medical Surveillance : Not available.

Section 9. Physical and chemical properties

Physical state : Solid. [Crystalline solid.]

Color : Colorless.

Odor : Odorless.

Odor threshold : Not available.

pH : Not available.

Boiling point : 265 °C (1013 hPa)

Melting point : 69.8°C (157.6°F)

Flash point : Closed cup: 127°C (260.6°F)

Evaporation rate : Not available.

Section 9. Physical and chemical properties

Explosion limits : Not available.

Risk of dust explosion : Class of dust explosion St 2: great danger of dust explosion, Geigy test

Vapor pressure : 0.01 hPa (20℃)

Density : 1.03 g/cm³

Specific gravity (Relative density) : Not available.

Bulk density : 650 kg/m³

Solubility : 0.00076 g/l (water)

Partition coefficient: n-octanol/water : Not available.

Vapor density : Not available.

Viscosity : Not available.

Ignition temperature : >400°C

Auto-ignition temperature : Not available.

Decomposition temperature : >265°C

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.

Incompatible materials : Reactive or incompatible with the following materials:
oxidizing materials

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on the likely routes of exposure : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : May cause respiratory irritation.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Skin contact : No specific data.

Ingestion : No specific data.

Potential chronic health effects

Short term exposure

Potential immediate effects : Not available.

Long term exposure

Section 11. Toxicological information

Potential delayed effects : Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure	Test
Butylated Hydroxy Toluene (BHT)	LD50 Oral	Rat	>5000 mg/kg	-	OECD 401 Acute Oral Toxicity *
Butylated Hydroxy Toluene (BHT)	LD50 Dermal	Rat	>5000 mg/kg	-	402 Acute Dermal Toxicity *

Conclusion/Summary : Butylated Hydroxy Toluene (BHT):* Extrapolation according to Regulation (EC) No. 440/2008

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation	Reversibility
Butylated Hydroxy Toluene (BHT)	Eyes - Redness of the conjunctivae	Rabbit	0.5	-	-	
	Eyes - Iris lesion	Rabbit	0	-	-	
	Eyes - Cornea opacity	Rabbit	0	-	-	
	Eyes - Edema of the conjunctivae	Rabbit	0.1	-	-	

Conclusion/Summary

Skin : Butylated Hydroxy Toluene (BHT):Slight irritant

Eyes : Butylated Hydroxy Toluene (BHT):Slight irritant

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Butylated Hydroxy Toluene (BHT)	skin	Human	Not sensitizing

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Butylated Hydroxy Toluene (BHT)	Ames test	Experiment: In vitro Subject: Bacteria	Negative
	In vitro Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic	Negative
	In vitro Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal Cell: Germ	Negative
	Micronucleus assay	Experiment: In vivo	Negative

Section 11. Toxicological information

	Cytogenetic assay	Subject: Mammalian-Animal Experiment: In vivo Subject: Mammalian-Animal	Negative

Carcinogenicity

Product/ingredient name	CAS #	IARC	NTP	OSHA
Butylated Hydroxy Toluene (BHT)	128-37-0	Not classified.	Not classified.	Not classified.
Butylated Hydroxy Toluene (BHT)		Not classified.	Not classified.	Not classified.

Reproductive toxicity

Product/ingredient name	Effects	Species	Dose	Exposure
Butylated Hydroxy Toluene (BHT)		Rat - Male, Female	Oral: 500 mg/kg NOAEL	-
		Rat - Male, Female	Oral: 100 mg/kg NOAEL	-

Teratogenicity

Conclusion/Summary : Butylated Hydroxy Toluene (BHT):No Teratogenic effects observed.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Butylated Hydroxy Toluene (BHT)	Category 3	Not applicable.	Respiratory tract irritation

Section 12. Ecological information

Toxicity

Product/ingredient name	Test	Result	Species	Exposure
Butylated Hydroxy Toluene (BHT)	-	Acute EC50 >10000 mg/l	Bacteria - activated sludge	3 hours
	OECD 202 *Daphnia* sp. Acute Immobilization Test	Acute EC50 0.61 mg/l	Daphnia - Daphnia magna	48 hours
	EU C.3	Acute IC50 >0.4 mg/l	Algae - Desmodesmus subspicatus	72 hours
	EU C.1	Acute LC0 >=0.57 mg/l	Fish - Danio rerio	96 hours
	OECD 202 *Daphnia* sp. Acute Immobilization Test	Chronic NOEC 0.316 mg/l	Daphnia - Daphnia magna	21 days

Conclusion/Summary : Not available.

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Butylated Hydroxy Toluene (BHT)	OECD 301C Ready Biodegradability - Modified MITI Test (I)	4.5 % - Not readily - 28 days	-	-

Conclusion/Summary : Not available.

Section 12. Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Butylated Hydroxy Toluene (BHT)	-	-	Not readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Butylated Hydroxy Toluene (BHT)	5.1	-	high

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

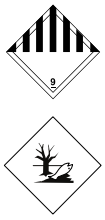
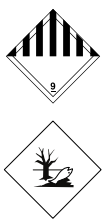
Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Waste disposal should be in accordance with existing federal state, provincial and or local environmental controls laws. Observe label precautions.

RCRA classification : : If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	-	-	-	-		Not regulated.
IMDG Class	UN3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2,6-DI-TERT-BUTYL-P-CRESOL)	9	III		**Emergency schedules (EmS)** F-A, S-F
IATA-DGR Class	UN3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2,6-DI-TERT-BUTYL-P-CRESOL)	9	III		**Passenger aircraft** 956: 400 kg **Cargo aircraft** 956: 400 kg

PG* : Packing group

RQ : 0 lbs

Section 15. Regulatory information

SARA 311/312 : Immediate (acute) health hazard

SARA Title III Section 302 Extremely Hazardous Substances : None

SARA Title III Section 313 Toxic Chemicals : None

US EPA CERCLA Hazardous Subtances (40 CFR 302) : None

State regulations

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections on the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropraite agency in your state.

Ingredient name	CAS number	State Code	Concentration (%)
Butylated Hydroxy Toluene (BHT)	128-37-0	MA - S, NJ - HS, PA - RTK HS	>99.8

Massachusetts Substances: MA - S
Massachusetts Extraordinary Hazardous Substances: MA - Extra HS
New Jersey Hazardous Substances: NJ - HS
Pennsylvania RTK Hazardous Substances: PA - RTK HS
Pennsylvania Special Hazardous Substances: PA - Special HS

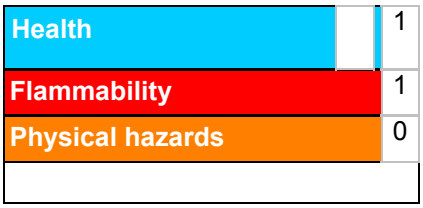
California Prop. 65

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

U.S. Toxic Substances Control Act : Listed on the TSCA Inventory.

Section 16. Other information

Hazardous Material Information System :



0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme
***=Chronic**

The customer is responsible for determining the PPE code for this material. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

National Fire Protection Association (U.S.A.) :

0= Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

LANXESS' method of hazard communication is comprised of Product Labels and Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS as a customer service.

Section 16. Other information

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Indicates information that has changed from previously issued version.

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