

CLEAN SCIENCE & TECHNOLOGY LTD.

| QEHS, FOOD/FEED SAFETY MANUAL | | | |
|-------------------------------|------------------------------|--------------------------|--------------------|
| Title: | SAFETY DATA SHEET-BHA | | |
| Department | MARKETING | Document Ref. No. | IMS/MSDS-04 |
| Revision No. | 07 | Revision Date | 08.03.2022 |
| Effective From | 08.03.2022 | Next Review Date | 07.03.2025 |

1. Identification of the Substance/Preparation and of the Company/Undertaking

Product Name: Butylated Hydroxy Anisole (BHA)
Product Code: FG 0023

Synonyms: **2-tert-Butyl-4-methoxyphenol; 3-BHA, Phenol, 2-(1,1-dimethylethyl)-4-methoxy & 3-tert-Butyl-4-hydroxyanisole, 1b E320**

KKDIK Pre-registration: 05-0000|98823-08-0000

Application of the substance/the preparation: antioxidant (food grade) & dosage not to exceed limits prescribed in the country of use/specific legislation.

Uses advised against: Not for use as a drug. Not for administration to humans or animals.

Manufacturer/Supplier:

Clean Science & Technology Ltd.
Unit I & II Plot No. D-28 & D-26/3, MIDC Kurkumbh,
Tal-Daund, Dist. Pune,
413802, MS, India.
Telephone number: +91 2117-235868
E-mail: siddharth@cleanscience.co.in

2. Hazards Identification

Information Concerning Particular Hazards for Human and Environment:

The product has been classified according to the legislation in force. Classification according to CLP Regulation No. 1272/2008.

Xn: Harmful

N: Dangerous for the environment

Health hazards:

Acute toxicity (Oral)

Skin corrosion/irritation

Serious eye damage/eye irritation

Specific target organ toxicity - single exposure

Environmental hazards

Chronic hazards to the aquatic environment

Reproductive toxicity

Hazard summary Physical hazards:

Health hazards Inhalation:

Eye contact:

Skin contact:

Ingestion:

Other Health Effects:

Environmental hazards:

Category 4

Category 2

Category 2A

Category 3

Category 2

Category 2

Not classified as hazardous.

May cause respiratory irritation.

Causes serious eye irritation

Causes skin irritation.

Harmful if swallowed.

Suspected of causing cancer.

Toxic to aquatic life with long lasting effects.

H302: Harmful if swallowed

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H335: May cause respiratory irritation

H411: Toxic to aquatic life with long lasting effects.

H361: Suspected of damaging fertility or the unborn child

GHS Label Elements



Irritant



Health Hazards



Environment

Precautionary statement

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle Until all safety precautions have been read and understood.

P281: Use personal protective equipment as required.

P270: Do not eat, drink or smoke when using this product.

P261: Avoid breathing dust/fume/gas/mist/vapors/spray.

P271: Use only outdoors or in a well- ventilated area.

P264: Wash hands thoroughly after handling.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P273: Avoid release to the environment.

Response:

P308+P313: IF exposed or concerned: Get medical advice/attention.

P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P330: Rinse mouth.

P302+P352: IF ON SKIN: Wash with plenty of soap and water.

P332+P313: If skin irritation occurs: Get medical advice/attention.

P362: Take off contaminated clothing and wash before reuse.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313: If eye irritation persists: Get medical advice/attention.

P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P312: Call a POISON CENTER or doctor/physician if you feel unwell.

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P391: Collect spillage.

P321: Specific treatment (see ... on this label).

Storage:

P403+P233: Store in a well-ventilated place. Keep container tightly closed.

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

3. Composition/Information on Ingredients

Chemical Characterization:

CAS No.: 25013-16-5

Index Number/ EC number: 246-563-8

Additional Information:

Chemical Formula: C₁₁H₁₆O₂

Molecular weight: 180.24 g/mol

% concentration: >98.50 %

Product composition:

| Composition | Percentage |
|---------------------|----------------|
| 2BHA + 3BHA | 98.50% min. |
| Phenolic Impurities | 0.50% max. |
| Residue on Ignition | 0.05% max. |
| Sulphated Ash | 0.01% max. |
| Other Impurities | 0.94% max. |
| Total | 100.00% |

4. First Aid Measures

Description of first aid measures

Inhalation:

Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

Eye contact:

Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention. In case of irritation from airborne exposure, move to fresh air. Get medical attention if symptoms persist.

Skin contact:

Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Ingestion:

Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed:

May irritate and cause redness and pain. Symptoms may be delayed.

Indication of any immediate medical attention and special treatment needed:

Provide general supportive measures and treat symptomatically.

5. Fire-Fighting Measures

Vapor Pressure 0.000312 kPa at 25 °C
Auto-ignition temperature 599 °F (315 °C)

General fire hazards: None known.

Suitable extinguishing media: Water spray. - Dry chemical. Carbon Dioxide.

Unsuitable extinguishing media: None known.

Special hazards arising from the substance or mixture: Powdered material may form explosive dust-air mixtures.

Advice for fire fighters Special Fire Fighting Procedures: Minimize dust generation and accumulation.

Special protective equipment for fire-fighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:

Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Avoid inhalation of dust from the spilled material. Wear appropriate personal protective equipment.

Methods and materials for containment and cleaning up:

Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid the generation of dusts during clean-up. For waste disposal, see section 13 of the SDS. Clean surface thoroughly to remove residual contamination.

7. Handling and Storage

Precautions for safe handling:

Avoid breathing dust or vapor. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation.

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Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities:

Keep container tightly closed away from direct sun light or any source of heat & rains etc. in protected place (warehouse).

This material may be used in food / feed hence store away from toxic substances, odorous substance & incompatible chemicals.

If use in part, secure inner bag with suitable TIE and restore the outer package seals and store as above.

Excess humidity can damage the physical appearance and form of product.

Specific end use(s):

Antioxidant

8. Exposure Controls/Personal Protection

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

No exposure standards allocated.

Appropriate engineering controls

Airborne exposure should be controlled primarily by engineering controls such as general dilution ventilation, local exhaust ventilation, or process enclosure. Local exhaust ventilation is generally preferred to general exhaust because it can control the contaminant at its source, preventing dispersion into the work area. An industrial hygiene survey involving air monitoring may be used to determine the effectiveness of engineering controls. Effectiveness of engineering controls intended for use with highly potent materials should be assessed by use of nontoxic surrogate materials. Local exhaust ventilation such as a laboratory fume hood or other vented enclosure is recommended, particularly for grinding, crushing, weighing, or other dust-generating procedures.

Individual protection measures, such as personal protective equipment:

Eye Protection:



Tightly Sealed Goggles

Safety glasses with side shields are recommended. Face shields or goggles may be required if splash potential exists or if corrosive materials are present. Approved eye protection (e.g., bearing the ANSI Z87 or CSA stamp) is preferred. Maintain eyewash facilities in the work area.

Skin protection **Protection of Hands:**



Protective Gloves

Chemically compatible gloves. For handling solutions, ensure that the glove material is protective against the solvent being used. Use handling practices that minimize direct hand contact. Employees who are sensitive to natural rubber (latex) should use nitrile or other synthetic non latex gloves. Use of powdered latex gloves should be avoided due to the risk of latex allergy.

Other:

For handling of laboratory scale quantities, a cloth lab coat is recommended. Where significant quantities are handled, work clothing may be necessary to prevent take-home contamination.

Respiratory protection:

Where respirators are deemed necessary to reduce or control occupational exposures, use NIOSH-approved respiratory protection and have an effective respirator program in place (applicable U.S. regulation OSHA 29 CFR 1910.134). Particulate (AS/NZS 1716 & 1715, EN 1432000 & 1492001, ANSI Z88 or national equivalent).

Thermal hazards:

Not available.

General hygiene considerations:

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

General Information:

Form: Solid [Waxy powder/flakes]

Colour: White / off white to yellow flakes

Odour: faint Characteristic Odour

Melting Point/Melting Range: 59-63°C

Boiling Point/Boiling Range: 264°C@760 mm Hg

Flash Point: 110°C (close cup): 155 °C (Cleveland Open Cup)

Flammability (solid, gaseous): Product is not flammable.

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Auto-Ignition Temperature: 315°C

Danger of Explosion: Product does not present an explosion hazard.

Vapour Pressure at 25°C: 0.000312 kPa (0.00234 mm Hg)

Solubility In/Miscibility with Water at 20°C: Negligible

10. Stability and Reactivity

Reactivity: No reactivity hazards known.

Chemical stability: Material is stable under normal conditions.

Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.

Conditions to avoid: None known.

Incompatible materials: Oxidizing agents.

Hazardous decomposition products: Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions.

11. Toxicological Information

Information on likely routes of exposure:

Ingestion: Harmful if swallowed.

Inhalation: Due to lack of data the classification is not possible.

Skin contact: Due to lack of data the classification is not possible.

Eye contact: Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics: Isomer: Dizziness. Confusion. Muscle weakness. Stomach pain. Vomiting. Loss of consciousness.

Delayed and immediate effects of exposure: Isomer: Gastritis.

Acute toxicity: Harmful if swallowed.

Oral-Mouse LD50 1583 mg/kg 1250 mg/kg

Oral-Rat LD50 2910 mg/kg 880 mg/kg

Skin corrosion/irritation: Due to lack of data the classification is not possible.

Serious eye damage/eye irritation

Local effects: Irritancy test (mammal)

Result: Irritant.

Organ: Eye.

Respiratory sensitization: Due to lack of data the classification is not possible.

Skin sensitization: Due to lack of data the classification is not possible.

Germ cell Mutagenicity: Due to lack of data the classification is not possible. Data from germ cell mutagenicity tests were not found.

Mutagenicity S. typhimurium Ames assay:

Result: Negative.

Carcinogenicity: Suspected of causing cancer. An isomer of this material has been identified as a possible carcinogen by NTP and IARC.

Carcinogenicity study (1% oral study)

Result: Stomach papillomas were observed.

Species: Hamster

Reproductive toxicity: Based on available data, the classification criteria are not met. An isomer of this material did not cause adverse reproductive effects in animals.

Specific target organ toxicity - single exposure: Due to lack of data the classification is not possible. Specific target organ toxicity - repeated exposure Due to lack of data the classification is not possible.

Aspiration hazard: Based on available data, the classification criteria are not met.

12. Ecological Information

Ecotoxicity:

Crustacea: LC50: Daphnia: 3.2 mg/l, 96 hours

Aquatic Fish: LC50: Fathead minnow (Pimephales promelas): 2.2 mg/l, 96 hours Persistence and

Degradability: No data is available on the degradability of this product.

Bioaccumulative potential: Not available

Mobility in soil: Not available.

Other adverse effects: Not available.

13. Disposal Considerations

Disposal instructions:

Dispose in accordance with all applicable regulations. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

Local disposal regulations:

Not available.

Disposal Methods:

Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of in accordance with local regulations. Incinerate.

Contaminated packaging:

Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

European Waste Codes:

Comply with requirements of waste disposal legislation and any local authority requirements.

14. Transport Information

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

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|---|--|------|------|
| | ADR/RID | IMDG | IATA |
| ➤ | Class 9, Packing Group III, UN 3077 | | |
| ➤ | Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (butylated hydroxyanisole) | | |

15. Regulatory Information

US federal regulations ERCLA/SARA Hazardous Substances: Not applicable.

All components are on the U.S. EPA TSCA Inventory List.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories:

Immediate Hazard - Yes

Delayed Hazard - Yes

Fire Hazard - No

Pressure Hazard - No

Reactivity Hazard - No

SARA 302 Extremely hazardous substance: No

SARA 311/312 Hazardous chemical: No

Other federal regulations:

Safe Drinking Water Act (SDWA): Not regulated.

Food and Drug Administration (FDA): Not regulated.

US state regulations: WARNING: This product contains a chemical known to the State of California to cause cancer.

International Inventories:

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia | Australian Inventory of Chemical Substances (AICS) | Yes |
| Canada | Domestic Substances List (DSL) | Yes |
| Canada | Non-Domestic Substances List (NDSL) | No |
| China | Inventory of Existing Chemical Substances in China (IECSC) | Yes |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | Yes |
| Korea | Existing Chemicals List (ECL) | Yes |
| New Zealand | New Zealand Inventory | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

Department Issuing MSDS: Product safety department.

Contact: Krishnakumar Saboo, Tel: +91-2117-235868 email id: saboo@cleanscience.co.in

Abbreviations and Acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the

International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Key literature references and sources for data:

This information has been developed by CSTL staff from sources considered reliable but has not been independently verified by CSTL.

Disclaimer:

This information is based on our current knowledge and provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Revision History:

| Revision Number | Date of Revision | Details of revision/Review |
|-----------------|------------------|--|
| 0 | 01.10.2007 | New Document |
| 1 | 01.01.2016 | Reviewed as per customer requirement |
| 2 | 02.01.2017 | Periodic review (No change) |
| 3 | 16.02.2018 | Reviewed as per customer requirement (Altaquimica) |

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| | | Added hazard statement- H361: Suspected of damaging fertility or the unborn child | |
| 4 | 01.03.2019 | Removed corrosive symbol & signal word warning changed to irritant. | |
| 5 | 11.03.2021 | Company name change- Clean Science & Technology Private Limited to Clean Science & Technology Limited. | |
| 6 | 12.02.2022 | Carcinogenicity Category-2, H351: Suspected of causing cancer hazard has been removed. | |
| 7 | 08.03.2022 | Product composition part has been added in to the section No. 3 | |