SAFETY DATA SHEET

Eastman Tenox(TM) TBHQ Food Grade Antioxidant, Kosher

SECTION 1. IDENTIFICATION

Product name : Eastman Tenox(TM) TBHQ Food Grade Antioxidant, Kosher
Product code  : 03793-0N, P03793N9, P03793N0, P03793N4, E03793N1, P03793NC

Manufacturer or supplier's details
Company name of supplier : Eastman Chemical Company
Address : 200 South Wilcox Drive
          Kingsport TN 37660-5280
Telephone : (423) 229-2000
Emergency telephone : CHEMTREC: +1-800-424-9300, +1-703-527-3887 CCN7321

Recommended use of the chemical and restrictions on use
Recommended use : Antioxidant
Restrictions on use : None known.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200
Combustible dust
Acute toxicity (Oral) : Category 4
Acute toxicity (Dermal) : Category 4
Skin irritation : Category 2
Eye irritation : Category 2A
Skin sensitization : Category 1

GHS label elements
Hazard pictograms :

Signal Word : Warning
Hazard Statements : H302 + H312 Harmful if swallowed or in contact with skin. H315 Causes skin irritation.
SAFETY DATA SHEET

Eastman Tenox(TM) TBHQ Food Grade Antioxidant, Kosher

Precautionary Statements:

**Prevention:**
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P302 + P352 + P312 IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.

**Disposal:**
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Pure substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance name</td>
<td>03793-0N</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>1948-33-0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-tert-butylhydroquinone</td>
<td>1948-33-0</td>
<td>100</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

If inhaled:
Move to fresh air.
Treat symptomatically.
Get medical attention if symptoms occur.
In case of skin contact: Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Get medical advice/attention.

In case of eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

If swallowed: Seek medical advice. Do not induce vomiting without medical advice.

Most important symptoms and effects, both acute and delayed: Harmful if swallowed or in contact with skin. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Harmful if swallowed or in contact with skin. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.

Notes to physician: Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water spray
Carbon dioxide (CO2)
Dry chemical
Foam

Unsuitable extinguishing media: None known.

Hazardous combustion products: No hazardous combustion products are known

Specific extinguishing methods: Use water spray to cool unopened containers.

Special protective equipment for fire-fighters: Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Local authorities should be advised if significant spillages cannot be contained.

Environmental precautions: Avoid release to the environment.
Methods and materials for containment and cleaning up: Sweep up or vacuum up spillage and collect in suitable container for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling: Avoid contact with skin, eyes and clothing. Do not taste or swallow. Wash thoroughly after handling. Use only with adequate ventilation.

Conditions for safe storage: Keep container tightly closed in a dry and well-ventilated place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters: Contains no substances with occupational exposure limit values.

Engineering measures: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal protective equipment

Respiratory protection: Wear respiratory protection.

Hand protection

Remarks: Wear suitable gloves.

Eye protection: Safety glasses

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: solid

Color: white

Odor: slight

Odor Threshold: not determined
**SAFETY DATA SHEET**

Eastman Tenox(TM) TBHQ Food Grade
Antioxidant, Kosher

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue</th>
<th>Date of first issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3</td>
<td>05/25/2018</td>
<td>150000017124</td>
<td>05/25/2018</td>
<td>09/06/2016</td>
</tr>
<tr>
<td>PRD</td>
<td></td>
<td>SDSUS / 28 / 0001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **pH**: not determined
- **Melting point/range**: 126.5 - 128.5 °C / 126.5 - 128.5 °C
- **Boiling point/boiling range**: 295 °C / 295 °C
- **Flash point**: 171 °C / 171 °C
  - Method: Cleveland open cup
- **Evaporation rate**: not determined
- **Self-ignition**: 457 °C / 457 °C
  - Method: ASTM D2155
- **Upper explosion limit / Upper flammability limit**: not determined
- **Lower explosion limit / Lower flammability limit**: not determined
- **Vapor pressure**: not determined
- **Relative vapor density**: not determined
- **Relative density**: 1.05 (20 °C / 20 °C)
- **Solubility(ies)**
  - Water solubility: Moderate
- **Partition coefficient: n-octanol/water**
  - Pow: 33
  - log Pow: 1.52
- **Decomposition temperature**
  - Method: DTA
  - No exotherm to 400°C
- **Viscosity**
  - Viscosity, dynamic: not determined
  - Viscosity, kinematic: not determined
- **Explosive properties**: Not classified
- **Oxidizing properties**: Not classified
- **Dust deflagration index (Kst)**: 375 m.b./s
- **Minimum ignition energy**: 3 - 5 mJ

**SECTION 10. STABILITY AND REACTIVITY**
Reactivity
Stable

Chemical stability
Stable under normal conditions.

Possibility of hazardous reactions
None known.

Conditions to avoid
Avoid dust formation.

Incompatible materials
Oxidizing agents

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity
Harmful if swallowed or in contact with skin.

Product:
Acute oral toxicity: Remarks: No data available
Acute inhalation toxicity: Remarks: No data available
Acute dermal toxicity: Remarks: No data available

Ingredients:
2-tert-butylhydroquinone:
Acute oral toxicity: LD50 Oral (Rat, male): 951 mg/kg
LD50 Oral (Rat, female): 1,131 mg/kg
Acute dermal toxicity: LD50 Dermal (Guinea pig): > 1,000 mg/kg

Skin corrosion/irritation
Causes skin irritation.

Product:
Remarks: No data available

Ingredients:
2-tert-butylhydroquinone:
Species: Guinea pig
Exposure time: 24 h
Result: slight

Serious eye damage/eye irritation
Causes serious eye irritation.
SAFETY DATA SHEET

Eastman Tenox(TM) TBHQ Food Grade Antioxidant, Kosher

Version 2.3  Revision Date: 05/25/2018  SDS Number: 150000017124  Date of last issue: 05/25/2018
FRD  SDSUS / 28 / 0001  Date of first issue: 09/06/2016

Product:
Remarks: No data available

Ingredients:

2-tert-butylhydroquinone:
Species: Rabbit
Result: irritating

Respiratory or skin sensitization

Skin sensitization
May cause an allergic skin reaction.

Respiratory sensitization
Not classified based on available information.

Product:
Remarks: No data available

Ingredients:

2-tert-butylhydroquinone:
Test Type: Skin Sensitization
Species: Guinea pig
Result: slight

Germ cell mutagenicity
Not classified based on available information.

Product:
Genotoxicity in vitro:
Test Type: Mutagenicity
Result: Based on available data, the classification criteria are not met.

Genotoxicity in vivo:
Test Type: Mutagenicity
Result: Based on available data, the classification criteria are not met.

Carcinogenicity
Not classified based on available information.

Product:
Remarks: This product may contain certain PAHs listed as carcinogens or potential carcinogens by OSHA, IARC, or NTP.

IARC
No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA
No component of this product present at levels greater than or equal to 0.1% is
SAFETY DATA SHEET

Eastman Tenox(TM) TBHQ Food Grade Antioxidant, Kosher

Version: 2.3  Revision Date: 05/25/2018  SDS Number: 150000017124  Date of last issue: 05/25/2018
PRID  Date of first issue: 09/06/2016
SDSUS / Z8 / 0001

on OSHA’s list of regulated carcinogens.

**NTP**
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**Reproductive toxicity**
Not classified based on available information.

**Product:**
Effects on fertility: Remarks: No data available

**STOT-single exposure**
Not classified based on available information.

**Product:**
Assessment: Based on available data, the classification criteria are not met.

**STOT-repeated exposure**
Not classified based on available information.

**Product:**
Assessment: Based on available data, the classification criteria are not met.

**Repeated dose toxicity**

**Product:**
Remarks: No known significant effects or critical hazards.

**Aspiration toxicity**
Not classified based on available information.

**Product:**
Not applicable

**Information on likely routes of exposure**

**Product:**
Inhalation: Remarks: None known.

Skin contact: Remarks: Harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction.

Eye contact: Remarks: Causes serious eye irritation.

Ingestion: Remarks: Harmful if swallowed.
SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

**Ingredients:**

2-tert-butylhydroquinone:

Toxicity to fish: \( \text{LC50 (Pimephales promelas (fathead minnow)): 0.6 mg/l Exposure time: 96 h} \)

Toxicity to daphnia and other aquatic invertebrates: \( \text{LC50 (Daphnia magna (Water flea)): 3.2 mg/l Exposure time: 96 h} \)

Persistence and degradability

**Ingredients:**

2-tert-butylhydroquinone:

Biodegradability: Concentration: 20 mg/l
Biodegradation: 19 % Exposure time: 28 d

Biochemical Oxygen Demand (BOD): BOD-5:
70 mg/g
BOD-20:
2,000 mg/g

Chemical Oxygen Demand (COD): 2,200 mg/g

ThOD: 2,450 mg/g

Bioaccumulative potential
No data available

Mobility in soil
No data available

Other adverse effects
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues: Dispose of in accordance with local regulations.
SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR
UN/ID No. : UN 3077
Proper shipping name : Environmentally hazardous substance, solid, n.o.s. (2-tert-butylhydroquinone)
Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo aircraft) : 956
Packing instruction (passenger aircraft) : 956

IMDG-Code
UN number : UN 3077
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2-tert-butylhydroquinone)
Class : 9
Packing group : III
Labels : 9
EmS Code : F-A, S-F
Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

49 CFR
UN/ID/NA number : UN 3077
Proper shipping name : Environmentally hazardous substance, solid, n.o.s. (2-tert-butylhydroquinone)
Class : 9
Packing group : III
Labels : Class 9 - Miscellaneous Dangerous Goods
ERG Code : 171
Marine pollutant : no
Remarks : Shipping in package sizes of less than 5 L (liquids) or 5 KG (solids) may lead to a non-regulated classification.

Special precautions for user
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.
SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

**CERCLA Reportable Quantity**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>toluene</td>
<td>108-88-3</td>
<td>100</td>
<td>100 (F005)</td>
</tr>
<tr>
<td>toluene</td>
<td>108-88-3</td>
<td>1000</td>
<td>*</td>
</tr>
</tbody>
</table>

*: Calculated RQ exceeds reasonably attainable upper limit.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards**:
- Combustible dust
- Acute toxicity (any route of exposure)
- Skin corrosion or irritation
- Serious eye damage or eye irritation
- Respiratory or skin sensitization

**SARA 313**:
- This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**California Prop. 65**

WARNING: This product can expose you to chemicals including toluene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

**The ingredients of this product are reported in the following inventories:**

- **DSL**: All components of this product are on the Canadian DSL
- **AICS**: On the inventory, or in compliance with the inventory
- **ENCS**: On the inventory, or in compliance with the inventory
- **ISHL**: On the inventory, or in compliance with the inventory
- **KECI**: On the inventory, or in compliance with the inventory
- **PICCS**: On the inventory, or in compliance with the inventory
- **IECSC**: On the inventory, or in compliance with the inventory
- **TCSI**: On the inventory, or in compliance with the inventory
- **TSCA**: On the inventory, or in compliance with the inventory
TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Further information

**NFPA 704:**

<table>
<thead>
<tr>
<th>Flammability</th>
<th>Health</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

**HMIS® IV:**

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>PHYSICAL HAZARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ 2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office
Revision Date : 05/25/2018

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.