SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: Eastman Tenox(TM) 25 Food-Grade Antioxidant, Kosher

Product No.: EAN 970993. 13385-00, P1338500, P1338502, P1338504, P1338503

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: antioxidant (food grade)
Uses advised against: None known.

1.3 Details of the supplier of the safety data sheet

Manufacturer / Supplier

Eastman Chemical Company
200 South Wilcox Drive
Kingsport, TN 37660-5280 US
+14232292000

Visit our website at www.EASTMAN.com or email emnmsds@eastman.com

National Supplier

Eastman Chemical B.V.
Fascinatio Boulevard 602-614
2909 Capelle aan den IJssel
The Netherlands
Telephone: (31) 10 2402 111
Fax: (31) 10 2402 100

1.4 Emergency telephone number:

For emergency health, safety, and environmental information: telephone 800-EASTMAN or 423 229-4511 in the United States; or
+44 (0)1235 239 670 in Europe.

For emergency transportation information, call 423-229-4511 in the United States; 800 964214 in England; or +44(0)1235 239 670 in the other European countries. Identify the call as a transportation emergency.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

Regulation No. 1272/2008.

Health hazards

Skin corrosion/irritation	Category 2	H315: Causes skin irritation.

Serious eye damage/eye irritation	Category 2	H319: Causes serious eye irritation.
Skin sensitizer	Category 1	H317: May cause an allergic skin reaction.
Environmental hazards		
Chronic hazards to the aquatic environment	Category 2	H411: Toxic to aquatic life with long lasting effects.

Hazard summary

Physical hazards: Not classified as hazardous.

Health hazards

Inhalation: None known.

Eye contact: Causes serious eye irritation.

Skin contact: Causes skin irritation. May cause an allergic skin reaction.

Ingestion: None known.

Other Health Effects: None known.

Environmental hazards: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

Xi: Irritant
N: Dangerous for the environment
R43: May cause sensitisation by skin contact.
R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.2 Label elements

Signal words: WARNING!

Hazard Statement(s):
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H317: May cause an allergic skin reaction.
H411: Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention: P280: Wear protective gloves/protective clothing/eye protection/face protection. P273: Avoid release to the environment.

Response: P302+P352: IF ON SKIN: Wash with plenty of soap and water. P333+P313: If skin irritation or rash occurs: Get medical advice/attention. 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.

2.3 Other hazards: None known.

SECTION 3: Composition/information on ingredients

3.1 / 3.2 Substances / Mixtures

General information:

Chemical name	Concentration	Additional identification	Notes
corn oil	31%	CAS-No.: 8001-30-7 EC No.: 232-281-2	
emulsifier	31%	proprietary	
propylene glycol	15%	CAS-No.: 57-55-6 EC No.: 200-338-0	#
butylated hydroxytoluene	10%	CAS-No.: 128-37-0 EC No.: 204-881-4	#
2-tert-butylhydroquinone	10%	CAS-No.: 1948-33-0 EC No.: 217-752-2	
citric acid	3%	CAS-No.: 77-92-9 EC No.: 201-069-1	

Explanation for Notes (if applicable):
* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
# This substance has w orkplace exposure limit(s).
PBT: persistent, bioaccumulative and toxic substance.
vPvB: very persistent and very bioaccumulative substance.

Classification

Chemical name	Classification		Notes
corn oil	DSD:	This substance is not classified according to Directive 67/548/EEC.	
	CLP:	NOT CLASS ,	
emulsifier	DSD:	This substance is not classified according to Directive 67/548/EEC.	
	CLP:	NOT CLASS ,	

propylene glycol	DSD:	This substance is not classified according to Directive 67/548/EEC.	
	CLP:	NOT CLASS ,	
butylated hydroxytoluene	DSD:	N, R50/53	
	CLP:	Aquatic Acute 1, H400; Aquatic Chronic1, H410	
2-tert-butylhydroquinone	DSD:	Xn, N, R21/22, R36/38, R43, R50/53	
	CLP:	Acute Tox. 4, H302; Acute Tox.4, H312; Skin Corr.2, H315; Eye Dam.2, H319; Skin Sens.1B, H317; Aquatic Acute1, H400; Aquatic Chronic1, H410	
citric acid	DSD:	Xi, R36/37	
	CLP:	Eye Dam. 2, H319; STOT SE3, H335	

DSD: Directive 67/548/EEC.
CLP: Regulation No. 1272/2008.:

The full text for all R- and H-phrases is displayed in section 16.

SECTION 4: First aid measures

4.1 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.

Skin contact: Immediately remove contaminated clothing and shoes and wash skin with soap and plenty of water. If skin irritation or an allergic skin reaction develops, get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Ingestion: Seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed: Allergic rash. May irritate and cause redness and pain.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: None known.

Treatment: Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards: None known.

5.1 Extinguishing media

Suitable extinguishing media:	Water spray. Dry chemical. Carbon Dioxide. Alcohol foam.
Unsuitable extinguishing media:	None known.

5.2 Special hazards arising from the substance or mixture:	None known.

5.3 Advice for firefighters

Special fire fighting procedures:	None known.
Special protective equipment for fire-fighters:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:	Wear appropriate personal protective equipment.
6.2 Environmental precautions:	Avoid release to the environment.
6.3 Methods and material for containment and cleaning up:	Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Large Spillages: Flush spill area with water spray. Prevent runoff from entering drains, sewers, or streams. Dike for later disposal.
Notification Procedures:	In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

SECTION 7: Handling and storage:

7.1 Precautions for safe handling:	Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.
7.2 Conditions for safe storage, including any incompatibilities:	Keep container closed. Keep from freezing.
7.3 Specific end use(s):	antioxidant (food grade)

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Country specific exposure limits have not been established or are not applicable unless listed below.

Chemical name	Type	Exposure Limit values	Source
propylene glycol - Particulate.	TWA	10 mg/m3	UK. EH40 Workplace Exposure Limits (WELs) (2007)
propylene glycol - Total vapour and particulates.	TWA	150 ppm 474 mg/m3	UK. EH40 Workplace Exposure Limits (WELs) (2007)
butylated hydroxytoluene	TWA	10 mg/m3	UK. EH40 Workplace Exposure Limits (WELs) (2007)

8.2 Exposure controls

Appropriate engineering controls: 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.

Individual protection measures, such as personal protective equipment

General information: Eye bath. Washing facilities. Safety shower.

Eye/face protection: Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection: Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.

Other: No data available.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

Hygiene measures: Observe good industrial hygiene practices.

Environmental Controls: No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical State:	Liquid
Form:	Viscous Liquid
Color:	Amber
Odor:	slight
Odor Threshold:	Not determined.
pH:	No data available.
Melting Point	No data available.
Boiling Point:	215 °C
Flash Point:	113 °C (method unspecified) (estimated)
Evaporation Rate:	Not determined.
Flammability (solid, gas):	No data available.
Flammability Limit - Upper (%)–:	No data available.
Flammability Limit - Lower (%)–:	No data available.
Vapor pressure:	Not determined.
Vapor density (air=1):	Not available.
Specific Gravity:	0.938 (20 °C)
Solubility(ies)	
Solubility in Water:	Appreciable
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Autoignition Temperature:	No data available.
Decomposition Temperature:	Thermal stability not tested. Low stability hazard expected at normal operating temperatures.
Dynamic Viscosity:	190 mPa.s (25 °C)
Kinematic viscosity:	202.5 mm2/s(Estimated)
Explosive properties:	No data available.
Oxidizing properties:	No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity:	None known. Materials containing similar structural groups are normally stable.
10.2 Chemical stability:	Not fully evaluated.
10.3 Possibility of hazardous reactions:	None known.
10.4 Conditions to avoid:	None at ambient temperatures.
10.5 Incompatible materials:	Strong oxidizing agents.
10.6 Hazardous decomposition products:	Carbon Dioxide. Carbon Monoxide.

SECTION 11: Toxicological information

Information on likely routes of exposure

Inhalation: None known.

Ingestion: None known.

Skin contact: Causes skin irritation. May cause an allergic skin reaction.

Eye contact: Causes serious eye irritation.

11.1 Information on toxicological effects

Acute Toxicity

Oral

Product: No data available.

Specified substance(s)

corn oil	Oral LD-50: (Rat): > 92,000 mg/kg
emulsifier	No data available.
propylene glycol	Oral LD-50: (Rat): 22,000 mg/kg
butylated hydroxytoluene	Oral LD-50: (Rat): > 6,000 mg/kg
2-tert-butylhydroquinone	Oral LD-50: (Rat, Male.): 951 mg/kg Oral LD-50: (Rat, Female.): 1,131 mg/kg
citric acid	Oral LD-50: (Rat): 2,263 mg/kg

Dermal

Product: No data available.

Specified substance(s)

corn oil	No data available.
emulsifier	No data available.
propylene glycol	Dermal LD-50: (Rabbit): > 2,000 mg/kg
butylated hydroxytoluene	Dermal LD-50: (Guinea Pig): > 20,000 mg/kg
2-tert-butylhydroquinone	Dermal LD-50: (Guinea Pig): > 1,000 mg/kg
citric acid	Dermal LD-50: (Rat): > 1,000 mg/kg

Inhalation

Product: No data available.

Specified substance(s)

corn oil	No data available.
emulsifier	No data available.
propylene glycol	LC50 (Rat, 2 h): > 317 mg/l (highest concentration tested)
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

Repeated dose toxicity

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	No data available.
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

Skin corrosion/irritation:

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	(Rabbit, 24 h): none
butylated hydroxytoluene	(Rabbit, 24 h): very slight
2-tert-butylhydroquinone	(Guinea Pig, 24 h): moderate
citric acid	(Rabbit, 24 h): Slight

Serious eye damage/eye irritation:

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	(Rabbit): very slight
butylated hydroxytoluene	(Rabbit): none
2-tert-butylhydroquinone	(Rabbit): Strongly irritating.
citric acid	(Rabbit, 24 h): moderate to strong

Respiratory or skin sensitization:

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	Skin Sensitization:, (Human) - Not a skin sensitizer.
butylated hydroxytoluene	Skin Sensitization:, (Guinea Pig) - non-sensitizing
2-tert-butylhydroquinone	Skin Sensitization:, (Guinea Pig) - slight Skin Sensitization:, (Human) - slight
citric acid	No data available.

Mutagenicity

In vitro

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	No data available.
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

In vivo

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	No data available.
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

Carcinogenicity

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	No data available.
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

Reproductive toxicity

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	No data available.
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

Specific target organ toxicity - single exposure

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	No data available.

butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	Inhalation: Respiratory tract irritation. Dermal: Skin
citric acid	Inhalation: Respiratory tract irritation.

Specific target organ toxicity - repeated exposure

Product: No data available.

Specified substance(s)

corn oil	No data available.
emulsifier	No data available.
propylene glycol	No data available.
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

Aspiration hazard

Product: No data available.

Specified substance(s)

corn oil	No data available.
emulsifier	No data available.
propylene glycol	No data available.
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

Other adverse effects: No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity

Fish

Product: No data available.

Specified substance(s)

corn oil	No data available.
emulsifier	No data available.
propylene glycol	LC-50 (Oncorhynchus mykiss, 96 h): 40,613 mg/l
butylated hydroxytoluene	LC-50 (Fish, 96 h): 0.199 mg/l
2-tert-butylhydroquinone	LC-50 (Fathead Minnow, 96 h): 0.6 mg/l
citric acid	LC-50 (Fish, 48 h): 440 mg/l

Aquatic invertebrates

Product: No data available.

Specified substance(s)

corn oil	No data available.
emulsifier	No data available.

propylene glycol	LC-50 (Ceriodaphnia, 48 h): 18,340 mg/l
butylated hydroxytoluene	EC-50 (daphnid, 48 h): 0.48 mg/l
2-tert-butylhydroquinone	LC-50 (Water Flea, 96 h): 3.2 mg/l LC-50 (snail, 96 h): 32 mg/l LC-50 (flatworm, 96 h): 3.2 mg/l
citric acid	LC-50 (daphnid, 24 h): 1,535 mg/l

Chronic Toxicity

Fish

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	No data available.
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

Aquatic invertebrates

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	No data available.
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

Toxicity to Aquatic Plants

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	EC-50 (Alga, 72 h): 19,300 mg/l
butylated hydroxytoluene	EC-50 (Alga, 96 h): 0.758 mg/l
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

12.2 Persistence and degradability

Biodegradation

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	81.7 % (28 d, Ready Biodegradability: CO2 Evolution Test) Readily biodegradable
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	19 % (28 d)

citric acid	97 % (28 d, Ready Biodegradability: CO2 Evolution Test) Readily biodegradable

Biological Oxygen Demand:

Product	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	BOD-5: 1,080 mg/g BOD-20: 1,225 mg/g
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	BOD-5: 70 mg/g BOD-20: 2,000 mg/g
citric acid	No data available.

Chemical Oxygen Demand:

Product	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	1,630 mg/g
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	2,200 mg/g
citric acid	No data available.

BOD/COD ratio

Product	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	No data available.
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

12.3 Bioaccumulative potential

Product:	No data available.
Specified substance(s)	
corn oil	No data available.
emulsifier	No data available.
propylene glycol	No data available.
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

12.4 Mobility in soil: No data available.

Known or predicted distribution to environmental compartments

corn oil	No data available.
emulsifier	No data available.

propylene glycol	No data available.
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

12.5 Results of PBT and vPvB assessment: No data available.

corn oil	No data available.
emulsifier	No data available.
propylene glycol	No data available.
butylated hydroxytoluene	No data available.
2-tert-butylhydroquinone	No data available.
citric acid	No data available.

12.6 Other adverse effects: No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

General information: No data available.

Disposal methods: Dispose of waste and residues in accordance with local authority requirements. Incinerate. Since emptied containers 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.

SECTION 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.

ADR/RID

Class 9, Packing Group III

Possible Shipping Description(s):

UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (butylated hydroxytoluene,2-tert-butylhydroquinone)
9 III

IMDG - International Maritime Dangerous Goods Code

Marine pollutant.: (butylated hydroxytoluene, 2-tert-butylhydroquinone)

Possible Shipping Description(s):

UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (butylated hydroxytoluene,2-tert-butylhydroquinone) 9 III

IATA

Class not regulated
Possible Shipping Description(s):

UN 3082 Environmentally hazardous substance, liquid, n.o.s. (butylated hydroxytoluene,2-tert-butylhydroquinone) 9 III

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

This product is permitted under existing FDA regulations for use as a direct (or an indirect) food additive.
TSCA (US Toxic Substances Control Act): All components of this product are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): All components of this product are listed on the DSL. Any impurities present in this product are exempt from listing.

AICS / NICNAS (Australian Inventory of Chemical Substances and National Industrial Chemicals Notification and Assessment Scheme): All components of this product are listed on AICS or otherwise comply with NICNAS.

MITI (Japanese Handbook of Existing and New Chemical Substances): All components of this product are listed in the Handbook or have been approved in Japan by new substance notification.

ECL (Korean Toxic Substances Control Act): All components of this product are listed on the Korean inventory or otherwise comply with the Korean Toxic Substances Control Act.

Philippines Inventory (PICCS) : All components of this product are listed on the Philippine inventory or otherwise comply with PICCS.

Inventory of Existing Chemical Substances in China: All components of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC).

15.2 Chemical safety assessment: None.

SECTION 16: Other information

Revision Information: Not relevant.

Key literature references and sources for data: No data available.

Wording of the R-phrases and H-statements in section 2 and 3:

N = Dangerous for the environment
R50/53 = Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Xn = Harmful
N = Dangerous for the environment
R21/22 = Harmful in contact with skin and if swallowed.
R36/38 = Irritating to eyes and skin.
R43 = May cause sensitisation by skin contact.
R50/53 = Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Xi = Irritant
R36/37 = Irritating to eyes and respiratory system.

NOT CLASS = Not classified

Aquatic Acute = Acute hazards to the aquatic environment
Aquatic Chronic = Chronic hazards to the aquatic environment
1 = Category 1
1 = Category 1
H400= Very toxic to aquatic life.
H410= Very toxic to aquatic life with long lasting effects.

Acute Tox. = Acute toxicity
Acute Tox. = Acute toxicity
Skin Corr. = Skin corrosion/irritation
Eye Dam. = Serious eye damage/eye irritation
Skin Sens. = Skin sensitizer
Aquatic Acute = Acute hazards to the aquatic environment
Aquatic Chronic = Chronic hazards to the aquatic environment
4 = Category 4
4 = Category 4
2 = Category 2
2 = Category 2
1B = Category 1B
1 = Category 1
1 = Category 1
H302= Harmful if swallowed.
H312= Harmful in contact with skin.
H315= Causes skin irritation.
H319= Causes serious eye irritation.
H317= May cause an allergic skin reaction.
H400= Very toxic to aquatic life.
H410= Very toxic to aquatic life with long lasting effects.

Eye Dam. = Serious eye damage/eye irritation
STOT SE = Specific target organ toxicity - single exposure
2 = Category 2
3 = Category 3
H319= Causes serious eye irritation.
H335= May cause respiratory irritation.

Training information:	No data available.
Issue date:	14.07.2014
SDS No.:	
Disclaimer:	This information is 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.