



## MATERIAL SAFETY DATA SHEET

### NOROX® TBHP

Syrgis Performance  
Initiators, Inc.  
Helena, AR

#### SECTION 1 - IDENTIFICATION OF THE PRODUCT PRODUCT NAME

NOROX® TBHP

**CHEMICAL NAME** Tertiary-Butyl Hydroperoxide (TBHP) **CAS NO.** See section 2.

**CHEMICAL FAMILY** Organic Peroxide - Hydroperoxide **CHEMICAL FORMULA** C<sub>4</sub>H<sub>10</sub>O<sub>2</sub>

#### SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

**COMPONENTS CAS NO. %**

Tert-Butyl Hydroperoxide 75-91-2 70

Water 7732-18-5 30

#### SECTION 3 - HAZARD IDENTIFICATION OF THE PREPARATION

**PHYSICAL HAZARDS** Organic Peroxide. Decomposition.

**HEALTH HAZARDS** Corrosive to skin and eyes.

**EXPOSURE LIMITS** None established.

##### ROUTES OF EXPOSURE

**Skin Contact** Corrosive to the skin, may produce skin irritation, blistering, ulcers, and deep scarring.

**Eye Contact** Corrosive to eyes, may cause destruction of eye tissue.

**Ingestion** Swallowing this material may result in a health hazard.

**Inhalation** Overexposure may cause irritation to the respiratory tract and to other mucous membranes.

**EFFECTS OF OVER-EXPOSURE** This material is known to be Mutagenic in-vitro. This material or its emissions may

affect mucous tissue and/or aggravate mucous membrane dysfunction.

#### SECTION 4 - FIRST-AID MEASURES

**SKIN** Immediately remove any contaminated clothing. Wash contaminated area thoroughly with soap and copious amounts of water for at least 15 minutes. If irritation or adverse symptoms develop, seek medical attention.

**EYES** Remove any contact lenses at once. Flush eyes with water for at 20 - 30 minutes.

Ensure adequate flushing by separating the eyelids with fingers. If irritation or adverse symptoms develop, seek medical attention.

**INGESTION** Give lukewarm water (pint) if victim completely conscious and alert. Do not induce vomiting/risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention. For aid to physician, suggest local Poison Control Center.

**INHALATION** Remove to fresh air, if coughing, breathing becomes labored, irritation develops or other symptoms develop, seek medical attention at once, even if symptoms develop several hours after the exposure.

#### SECTION 5 - FIRE-FIGHTING MEASURES

**FLASH POINT** 109°F (43°C), TCC

**FLAMMABLE LIMITS** 5% - 100%

**AUTOIGNITION POINT** 460 °F (238 °C)

**EXTINGUISHING MEDIA** Dry chemical, carbon dioxide, water spray, alcohol type foam, and water fog.

**SPECIAL FIRE FIGHTING**

**PROCEDURES**

Do not enter fire area without proper protection. Fight fire from safe distance/protected location. Burning material may release gases, thus rupturing closed containers, spreading fire and increasing the risk of burns and injuries. Availability of other combustibles may hasten burning, spreading the fire. Use water spray/fog for cooling. Notify authorities if liquid enters sewer/public waters.

**UNUSUAL FIRE AND EXPLOSION**

**HAZARDS**

Vapor can burn in absence of air and may be flammable at either elevated temperature or reduced pressure. Fine mist/spray may be combustible at temperatures below normal flash point. When evaporated, residual liquid will concentrate in TBHP content and may reach explosive level (>90%).

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**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

**STEPS TO BE TAKEN IN EVENT**

**OF SPILL OR RELEASE**

Highly reactive material. Release can cause fire/explosion/health/environmental hazards. Liquids/vapors may ignite/react with other materials. Evacuate/limit access. Equip responders with proper protection. Extinguish all ignition sources. Stop release. Prevent flow to sewers/public waters. Notify fire/environmental authorities. Blanket with firefighting foam. Impound/recover large land spill. Soak up small spills with inert solids. On water, material soluble/may float or sink. Contain/minimize dispersion and collect. Disperse residue to reduce aquatic harm. Report per regulatory requirements.

**SECTION 7 - HANDLING AND STORAGE**

**HANDLING** Rotate stock using the oldest material first. Avoid contact with skin, eyes and clothing. Use PPE as specified in Section 8. Keep containers closed to prevent contamination. Keep away from sources of heat, sparks or flame. Do not add to hot solvents or monomers as a violent decomposition and/or reaction may result. Keep in original container. DO NOT USE NEAR FOOD OR DRINK. Wash thoroughly after handling.

**STORAGE** The stability of TBHP is directly related to the shipping and storage temperature history. Cool storage at 80 °F (27 °C) or below is recommended for longer shelf life and stability. Prolonged storage at elevated temperatures will cause product degradation, gassing and potential container rupture which can result in a fire and/or explosion. Store out of direct sunlight in a well ventilated area away from combustible and incompatible materials. Inspect frequently to identify bulging/leaking containers. Isolate/depressure, if safe to do so. Store so fire extinguishing media can be applied to all containers from a safe distance/protected location. DO NOT STORE WITH FOOD OR DRINK. Refer to NFPA 432 Code for the Storage of Organic Peroxide Formulations from the National Fire Protection Association for additional storage information.

**OTHER PRECAUTIONS** Do not steam-purge systems containing this material until they have been properly flushed with a suitable material such as mineral oil, kerosene, TBA, etc. - depending on system compatibility. Unmixed, uncontaminated material, remaining at the end of the day, shall be returned to a proper organic peroxide storage area. Under no circumstances should material be returned to the original container.

**SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION**

**VENTILATION** Both local exhaust and general room ventilation are usually required to meet exposure standard(s).

**RESPIRATORY PROTECTION** If airborne concentrations are expected to exceed acceptable levels wear a NIOSH

approved air-purifying respirator with an organic vapor cartridge or canister. When using respirators refer to OSHA's 29CFR 1910.134.

**EYE PROTECTION** Safety goggles recommended. Permanent eyewash is highly recommended.

**HAND PROTECTION** Protective gloves recommended, solvent resistant, such as butyl rubber, nitrile or neoprene.

**OTHER** A safety shower and eyewash is recommended when the risk of a significant exposure exists.

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE AND ODOR:** Water white liquid, with pungent. With an odor threshold of approximately 1 ppm.

**BOILING POINT:** 205°F (96°C) **SPECIFIC GRAVITY:** .93

**VAPOR PRESSURE:** 23 at 21°C **FLASH POINT:** 109°F (43°C), TCC

**VAPOR DENSITY:** 3.1 **FLAMMABLE LIMITS:** %5 - 100%

**EVAPORATION RATE:** Not established. **SADT:** >60°C

**% VOLATILE BY VOLUME:** Not established. **pH:** 4.3

**SOLUBILITY IN WATER:** Partially soluble.

## SECTION 10 - STABILITY AND REACTIVITY

**STABILITY** Stable when kept in original, closed container, out of direct sunlight at temperatures below 80°F.

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**CONDITIONS TO AVOID** Prolonged exposure to heat, fire, contamination or any conditions, which would concentrate the liquid. Do not store in direct sunlight. Temperatures above SADT.

**MATERIALS TO AVOID** Metal compounds, oxidizable materials, sulfur compounds, promoters, accelerators, reducing agents, or any hot material.

**HAZARDOUS DECOMPOSITION**

**PRODUCTS**

High temperatures/chemical contamination can liberate gaseous oxygen causing hazardous pressure buildup. Incomplete combustion may generate hazardous vapors including carbon monoxide and isobutylene.

**HAZARDOUS POLYMERIZATION** Will not occur.

## SECTION 11 - TOXICOLOGICAL INFORMATION

**Tert-Butyl Hydroperoxide (100%)**

**Hazard Data:**

**Inhalation:** Rat--LC<sub>50</sub>: 1.85 mg/l/4hr.

**Inhalation:** Mouse--LC<sub>50</sub>: 350 ppm/l/4hr; Lung, Thorax, or Respiration: Dyspnea. Rat--LC<sub>50</sub>: 500 ppm/l/4hr; Lung,

Thorax, or Respiration: Dyspnea.

**Intraperitoneal:** Mouse--LD<sub>50</sub>: 246 mg/kg; N/R. Rat-- LD<sub>50</sub>: 87 mg/kg; Behavioral: Muscle weakness; Behavioral:

Ataxia.

**Oral:** Mouse--LD<sub>50</sub>: 320 mg/kg; Behavioral: Irritability; Gastrointestinal: Alteration in gastric secretion; Blood: Hemorrhage. Rat-- LD<sub>50</sub>: 370 mg/kg; Behavioral: Irritability; Gastrointestinal: Alteration in gastric secretion;

Blood:

Hemorrhage.

**Skin:** Rabbit--LD<sub>50</sub>: 460 µl/kg; Lung, Thorax, or Respiration: Cyanosis; Liver: Other changes; Kidney, Ureter, and

Bladder: Other changes in urine composition. Rat-- LD<sub>50</sub>: 790 mg/kg; N/R.

**Tert-Butyl Hydroperoxide (70%)**

**Hazard Data:**

**Dermal:** Rat--LD<sub>50</sub>: 628 mg/kg.

**Oral:** Rat--LD<sub>50</sub>: 810 mg/kg.

**Mutagenicity:** AMES - Test: Not mutagenic.

## SECTION 12 - ECOLOGICAL INFORMATION

The product should be prevented from entering drains, sewers, streams, etc.

**Fish Toxicity:** LC<sub>50</sub>: 56.9 mg/l/96hr.

**Bacteria Toxicity:** EC<sub>50</sub>: 17 mg/l.

**Aquatic Invertebrates Toxicity:** Daphnia--EC<sub>50</sub>: 20.1 mg/l/48hr.

**Aquatic Plants:** EC<sub>50</sub>: 1.2 mg/l/72hr.

**Biodegradability:** Closed Bottle Test: Not readily biodegradable

## SECTION 13 - DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved facility. Processing, use, or contamination of this product may change the waste management options. Immediately dispose of waste material at a RCRA approved hazardous waste management facility in accordance with federal, state and local regulations.

## SECTION 14 - TRANSPORT INFORMATION

**DOT Shipping Name:** ORGANIC PEROXIDE TYPE F, LIQUID  
(TERT-BUTYL HYDROPEROXIDE, ≤72%)

**DOT Hazard Class:** 5.2 (8)

**UN/NA ID No.:** UN3109

**DOT Packing Group:** PG II

**Labels:** 5.2 (Organic Peroxide), 8 (Corrosive)

**2004 ERG GUIDE NO.:** 145

## SECTION 15 - REGULATORY INFORMATION

The following chemicals are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments

and Reauthorization Act of 1986 and 40 CFR Part 372.

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**Chemical Name CAS Number Percent**

None N/A N/A

**Australian Inventory of Chemical Substances (AICS)**

The ingredients in this product are listed in the Australian AICS Inventory.

**Canadian Domestic Substances List (DSL)**

The ingredients in this product are listed in the Canadian DSL Inventory.

**Chinese Inventory of Existing Chemical Substances Manufactured or Imported in China (IECSC)**

The ingredients in this product are listed in the Chinese IECSC Inventory.

**European Inventory of Existing Commercial Chemical Substances (EINECS)**

The ingredients in this product are listed in the European EINECS Inventory.

**Japanese Existing and New Chemical Substances (ENCS)**

The ingredients in this product are listed in the Japanese ENCS Inventory.

**Korean Existing Chemicals List (ECL)**

The ingredients in this product are listed in the Korean ECL Inventory.

**US Toxic Substances Control Act (TSCA)**

The ingredients in this product are listed in the US TSCA Inventory.

**Status of Carcinogenicity**

Not recognized as a carcinogen by the IARC, NTP or OSHA.

## SECTION 16 - OTHER INFORMATION

**VOC Information**

Using ASTM Test Method D-2369-87, but at 40°C (since TBHP decomposes rapidly above 100°C and is not a VOC),

Norox® TBHP contains 8.2% VOC, by weight, or 63 grams per liter. For more information call Syrgis

Performance

Initiators, Inc.

**NFPA 432 Organic Peroxide Classification**

Class IV

**NFPA 704 Rating HMIS Rating**

Health Flammability Reactivity Health Flammability Reactivity

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**MSDS Reference:** TBHP MSDS 0709.1

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