



Material Safety Data Sheet

1. Product and company identification

NA

Product name : BPB 59396 OXYGEN SCAVENGER
Supplier : Baker Petrolite
A Baker Hughes Company
12645 W. Airport Blvd.
Sugar Land, TX 77478
For Product Information/MSDSs Call: 800-231-3606
(8:00 a.m. - 5:00 p.m. cst, Monday - Friday) 281-276-5400

Material Uses : Special: Boiler Water Treatment.

Code : BPB59396

Validation date : 2/1/2010.

Print date : 2/1/2010.

Version : 7

Responsible name : Global Regulatory Affairs - Telephone 281-276-5400 or 800-231-3606

In case of emergency : CHEMTREC: 800-424-9300 (U.S. 24 hour)
Baker Petrolite: 800-231-3606
(001)281-276-5400
CANUTEC: 613-996-6666 (Canada 24 hours)
CHEMTREC Int'l 01-703-527-3887 (International 24 hour)

2. Hazards identification

Physical state : Liquid.

Odor : Ammonia-like. [Slight]

Color : Yellow. [Light]

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview : WARNING!
COMBUSTIBLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED. MAY CAUSE ALLERGIC SKIN REACTION. MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.
At elevated temperatures, vapors can form an ignitable or explosive mixture with air. Can form explosive mixtures at temperatures at or above the flash point. Static discharges can cause ignition or explosion when container is not bonded. Keep away from heat, sparks and flame. Do not breathe vapor or mist. Do not ingest. Do not get on skin or clothing. Avoid contact with eyes. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Vapors can travel to a source of ignition and flashback. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Routes of entry : Dermal contact. Eye contact. Inhalation.

Potential acute health effects

Inhalation : Moderately irritating to the respiratory system.

Ingestion : Toxic if swallowed.

Skin : Moderately irritating to the skin. May cause sensitization by skin contact.

Eyes : Slightly irritating to the eyes.

Potential chronic health effects

2. Hazards identification

Chronic effects : Contains material that may cause target organ damage, based on animal data. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Target organs : Contains material which may cause damage to the following organs: liver, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

Over-exposure signs/symptoms

Inhalation : respiratory tract irritation, coughing

Ingestion : None known.

Skin : irritation, redness

Eyes : irritation, watering, redness

Medical conditions aggravated by over-exposure : Pre-existing skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3. Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Diethylhydroxylamine	3710-84-7	10 - 30
Hydroquinone	123-31-9	5 - 10

4. First aid measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wear suitable protective clothing and gloves. Remove contaminated clothing and shoes.

5. Fire-fighting measures

Flammability of the product : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.

Extinguishing media

Suitable : Use dry chemical, CO₂, water spray (fog) or foam.

Not suitable : Do not use water jet.

Special exposure hazards : 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.

5. Fire-fighting measures

- Hazardous thermal decomposition products** : carbon dioxide, carbon monoxide, nitrogen oxides
- 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.

6. Accidental release measures

- Personal precautions** : 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. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Absorb with an inert material. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Dike spill area and do not allow product to reach sewage system or surface or ground water. Notify any reportable spill to authorities. (See section 12 for environmental risks and 13 for disposal information.) Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

If RQ (Reportable Quantity) is exceeded, report to National Spill Response Office at 1-800-424-8802.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. 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.
- Storage** : Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see section 10). 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.

8 . Exposure controls/personal protection

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredients:	List name	ppm	mg/m ³	Other	ppm	mg/m ³	Other	ppm	mg/m ³	Other	Notations
Hydroquinone	US ACGIH	-	1	-	-	-	-	-	-	-	[3]
	OSHA PEL	-	2	-	-	-	-	-	-	-	
	OSHA PEL 1989	-	2	-	-	-	-	-	-	-	

[3]Skin sensitization

Consult local authorities for acceptable exposure limits.

Only components of this product with established exposure limits appear in the box above.

If OSHA permissible exposure levels are shown above they are the OSHA 1989 levels or are from subsequent OSHA regulatory actions. Although the 1989 levels have been vacated the 11th Circuit Court of Appeals, Baker Hughes recommends that these lower exposure levels be observed as reasonable worker protection.

- Recommended monitoring procedures** : 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.
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Use explosion-proof ventilation equipment.
- 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. Ensure that eyewash stations and safety showers are close to the workstation location. Take off contaminated clothing and wash before re-use.

Personal protection

- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant gloves: Neoprene gloves.
- Eyes** : Wear chemical safety goggles. When transferring material wear face-shield in addition to chemical safety goggles.
- Skin** : Wear long sleeves and other protective clothing to prevent repeated or prolonged skin contact.

9 . Physical and chemical properties

- Physical state** : Liquid.
- Flash point** : Closed cup: 56.1°C (133°F) [SFCC]
- Auto-ignition temperature** : Not available.
- Flammable limits** : Not available.
- Color** : Yellow. [Light]
- Odor** : Ammonia-like. [Slight]
- pH** : 8.2
- Boiling/condensation point** : Neat - without dilution.
- Boiling/condensation point** : 100°C (212°F)
- Initial Boiling Point** : Not available.
- Melting/freezing point** : -11°C (12.2°F)
- Relative density** : 1.018 (20°C)
- Density** : 8.48 (lbs/gal)
- Vapor density** : >1 [Air = 1]
- Odor threshold** : Not available.
- Evaporation rate** : Not available.

9 . Physical and chemical properties

VOC	: Not available.
Viscosity	: Dynamic (21°C):
Solubility (Water)	: Soluble
Vapor pressure	: Not available.
Pour Point	: Not available.
Partition coefficient (LogKow)	: Not available.

10 . Stability and Reactivity

Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Materials to avoid	: 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.
Conditions of reactivity	: Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Diethylhydroxylamine	LD50 Oral	Mouse	2150 mg/kg	-
	LC50 Inhalation Vapor	Rat	3140 ppm	4 hours
Hydroquinone	LD50 Oral	Rat	367.3 mg/kg	-
	LD50 Oral	Rat	320 mg/kg	-
	LD50 Oral	Rat	302 mg/kg	-
	LD50 Oral	Rabbit	200 mg/kg	-

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Hydroquinone	A3	3	-	-	-	-

Chronic toxicity Remarks

1) Diethylhydroxylamine

Diethylhydroxylamine (DEHA) is a component of this product. Rats exposed up to levels (inhalation, nose only,) of 1500 ppm for 28 days produced changes in liver and thymus weights, and associated blood and clinical chemistry effects. These effects were considered reversible following a two week non-exposure recovery period. DEHA has produced both weak positive and negative genetic changes in standard tests using animals, fruit flies and animal or bacterial cells, although the purity of the test material used in several of these studies was questionable. More recent studies of mice being exposed to DEHA at concentrations up to 1500 mg/kg was negative. (Vendor MSDS)

2) Hydroquinone

Hydroquinone is a component of this product. Chronic ingestion of small amounts may produce liver and kidney effects and anemia. It is also known as a methemoglobinemia (condition that affects the bloods ability to carry oxygen) inducer.

12 . Ecological information**Aquatic ecotoxicity**

Product/ingredient name	Result	Species	Exposure
BPB 59396 OXYGEN SCAVENGER	Acute EC50 3.19 mg/L	Daphnia - Ceriodaphnia dubia	48 hours
	Acute EC50 1.96 mg/L	Daphnia - Daphnia magna	48 hours
	Acute LC50 1.06 mg/L	Fish - Fathead minnow	96 hours

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.




13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Diethylhydroxylamine)	3	III		-
TDG Classification	UN1993	FLAMMABLE LIQUIDS, N.O.S. (Contains: Diethylhydroxylamine)	3	III		-
IMDG Class	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Diethylhydroxylamine)	3	III		Emergency schedules (EmS) F-E S-D

PG* : Packing group

DOT Reportable Quantity Hydroquinone, 118 gal of this product.

Marine pollutant Not applicable.

North-America NAERG : 128

15 . Regulatory information

- HCS Classification** : Combustible liquid
Toxic material
Irritating material
Sensitizing material
Target organ effects
- U.S. Federal regulations** : **United States inventory (TSCA 8b)**: All components are listed or exempted.
SARA 302/304/311/312 extremely hazardous substances: Hydroquinone
SARA 302/304 emergency planning and notification: Hydroquinone
SARA 302/304/311/312 hazardous chemicals: Diethylhydroxylamine; Hydroquinone
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: BPB 59396 OXYGEN SCAVENGER: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard
CERCLA: Hazardous substances.: Hydroquinone: 100 lbs. (45.4 kg);
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.
- Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)** : Listed

SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
Supplier notification	: Hydroquinone	123-31-9	5 - 10

United States inventory (TSCA 8b) : All components are listed or exempted.

Canada

- WHMIS (Canada)** : Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2B: Material causing other toxic effects (Toxic).
- Canada (CEPA DSL)**: : All components are listed or exempted.

16 . Other information

- Label requirements** : COMBUSTIBLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED. MAY CAUSE ALLERGIC SKIN REACTION. MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.
- National Fire Protection Association (U.S.A.)** :



Date of printing : 2/1/2010.

☑ Indicates information that has changed from previously issued version.

Notice to reader

16 . Other information

NOTE: The information on this MSDS is based on data which is considered to be accurate. Baker Hughes, however, makes no guarantees or warranty, either expressed or implied of the accuracy or completeness of this information.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

This MSDS was prepared and is to be used for this product. If the product is used as a component in another product, this MSDS information may not be applicable.