

1. Identification

Product identifier	ORGANIC HALOGEN REAGENT, (Sodium Biphenyl Solution)	
Other means of identification		
Product code	5005	
Synonym(s)	SODIUM BIPHENYL * BIPHENYL SODIUM * HALOGEN REAGENT	
Recommended use	professional, scientific and technical activities: scientific research and development	
Recommended restrictions	None known.	
Manufacturer/Importer/Supplier/Distributor information		
Company name	GFS Chemicals, Inc.	
Address	P.O. Box 245 Powell OH 43065 US	
Telephone	Phone	740-881-5501
	Toll Free	800-858-9682
	Fax	740-881-5989
Website	www.gfschemicals.com	
E-mail	service@gfschemicals.com	
Emergency phone number	Emergency Assistance	Chemtrec 800-424-9300

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 3
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Carcinogenicity	Category 2
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, repeated exposure	Category 1 (liver, nervous system, respiratory organs)
OSHA hazard(s)	Not classified.	
Label elements		



Signal word	Danger
Hazard statement	Flammable liquid and vapor. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. Suspected of causing cancer. Causes damage to organs (liver, nervous system, respiratory organs) through prolonged or repeated exposure. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only outdoors or in a well-ventilated area. Keep container tightly closed. Use explosion-proof electrical/ventilating/lighting/equipment. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.

Response	Specific treatment (see this label). In case of fire: Use appropriate media for extinction. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get medical advice/attention. IF exposed or concerned: Get medical advice/attention. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal	Dispose of contents/container to an approved incineration plant.
Hazard(s) not otherwise classified (HNOC)	Not classified.
Environmental hazards	Hazardous to the aquatic environment, acute hazard Category 1 Hazardous to the aquatic environment, long-term hazard Category 1
Supplemental information	
Precautionary statement	
Prevention	Avoid release to the environment.
Response	Collect spillage.
Disposal	Decompose active reagent with 2-propanol (isopropyl alcohol) prior to disposal. Dispose of contents/container in accordance with local/regional/national/international regulations.

3. Composition/information on ingredients

Mixtures

Hazardous components Chemical name	CAS number	%
ETHYL DIGLYME	112-36-7	60 - < 70*
BIPHENYL	92-52-4	20 - < 30*
SODIUM	7440-23-5	1 - < 3*

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Move to fresh air. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash off with soap and plenty of water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
Most important symptoms/effects, acute and delayed	Irritation of eyes and mucous membranes. Narcosis. Decrease in motor functions. Behavioral changes. Liver enlargement. Jaundice. Irritant effects. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	Keep victim under observation. Symptoms may be delayed. Provide general supportive measures and treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. IF exposed or concerned: Get medical advice/attention. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Dry chemical powder. Carbon dioxide (CO ₂). Alcohol resistant foam. Powder.
Unsuitable extinguishing media	Water. Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	By heating and fire, harmful vapors/gases may be formed.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection.

Fire-fighting equipment/instructions

In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage.

Specific methods

In the event of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Use standard firefighting procedures and consider the hazards of other involved materials. Move container from fire area if it can be done without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Wear appropriate personal protective equipment.

Methods and materials for containment and cleaning up

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water. Stop the flow of material, if this is without risk.

Large Spills: Dike the spilled material, where this is possible. Decompose active reagent with 2-propanol. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Decompose active reagent with 2-propanol. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways.

Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS.

Environmental precautions

Contact local authorities in case of spillage to drain/aquatic environment. Avoid discharge into drains, water courses or onto the ground. Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not smoke. Handle under nitrogen, protect from moisture. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe mist or vapor. Avoid contact with skin. Avoid contact with eyes. Use personal protective equipment as required. Avoid prolonged exposure. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in cool place. Store in a well-ventilated place. Keep container tightly closed. Keep in an area equipped with sprinklers. Keep out of the reach of children. Store in a cool, dry place out of direct sunlight.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
BIPHENYL (CAS 92-52-4)	PEL	1 mg/m3 0.2 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
BIPHENYL (CAS 92-52-4)	TWA	0.2 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
BIPHENYL (CAS 92-52-4)	TWA	1 mg/m3 0.2 ppm

Biological limit values

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

Exposure guidelines

US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants

DIETHYLENE GLYCOL DIETHYL ETHER, ETHYL DIGLYME Can be absorbed through the skin.
(CAS 112-36-7)

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Provide eyewash station.

Individual protection measures, such as personal protective equipment

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

Skin protection

Hand protection Wear protective gloves.

Other Wear suitable protective clothing. Wear protective gloves.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Not available.

General hygiene considerations When using do not smoke. Avoid contact with eyes. Avoid contact with skin. Wash hands before breaks and immediately after handling the product. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance Liquid.

Physical state Liquid.

Form Liquid.

Color dark blue black

Odor Ether-like.

Odor threshold Not available.

pH Not available.

Initial boiling point and boiling range 370.4 °F (188 °C) estimated

Flash point 114.80 °F (46.00 °C)

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) 0.6 % estimated

Flammability limit - upper (%) 5.8 % estimated

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor density Not available.

Relative density Not available.

Solubility(ies) Decomposes

Partition coefficient (n-octanol/water) Not available.

Decomposition temperature Not available.

Viscosity Not available.

Other information

Density 0.9 g/cm³ estimated

Flammability class Combustible II estimated

Flash point class Combustible IIIA

Percent volatile 69 % estimated

Specific gravity 0.9 estimated

VOC (Weight %) 69 % estimated

10. Stability and reactivity

Reactivity Not available.

Chemical stability	Stable under recommended storage conditions. Risk of ignition. May form explosive peroxides. Material reacts with water.
Possibility of hazardous reactions	Contact with water liberates extremely flammable gases. Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks. Avoid temperatures exceeding the flash point. Water, moisture.
Incompatible materials	Oxidizing agents. Strong acids. Water.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Not available.
Inhalation	May cause irritation to the respiratory system.
Skin contact	Not available.
Eye contact	Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics Narcosis. Liver enlargement. Jaundice. Behavioral changes. Decrease in motor functions. Irritant effects.

Information on toxicological effects

Acute toxicity

Product	Species	Test Results
ORGANIC HALOGEN REAGENT, (Sodium Biphenyl Solution) (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	8992.8057 mg/kg, estimated
	Rat	18021.582 mg/kg, estimated
<i>Inhalation</i>		
LC50	Mouse	0.9892 mg/l, 4 Hours, estimated
<i>Oral</i>		
LD50	Guinea pig	2665.7061 mg/kg, estimated
	Rabbit	8633.0938 mg/kg, estimated
	Rat	3914.3362 mg/kg, estimated
<i>Other</i>		
LD50	Mouse	201.4388 mg/kg, estimated

Components	Species	Test Results
BIPHENYL (CAS 92-52-4)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	2500 mg/kg
	Rat	> 5010 mg/kg
<i>Inhalation</i>		
LC50	Mouse	0.275 mg/l, 4 Hours
<i>Oral</i>		
LD50	Rabbit	2400 mg/kg
	Rat	3280 mg/kg
		2400 mg/kg
<i>Other</i>		
LD50	Mouse	56 mg/kg
ETHYL DIGLYME (CAS 112-36-7)		
Acute		
<i>Oral</i>		
LD50	Guinea pig	1850 mg/kg

Components	Species	Test Results
	Rat	4970 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.
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.
Carcinogenicity	Suspected of causing cancer.
Reproductive toxicity	Due to lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Respiratory tract irritation.
Specific target organ toxicity - repeated exposure	Causes damage to organs (liver, nervous system, respiratory organs) through prolonged or repeated exposure.
Aspiration hazard	Due to lack of data the classification is not possible.
Chronic effects	Prolonged inhalation may be harmful. Causes damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product	Species	Test Results
ORGANIC HALOGEN REAGENT, (Sodium Biphenyl Solution) (CAS Mixture)		
Crustacea	EC50	Daphnia
	LC50	Daphnia
Fish	LC50	Fish
Components	Species	Test Results

BIPHENYL (CAS 92-52-4)

Aquatic

Crustacea	EC50	Water flea (Daphnia pulex)	1.6 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	1.17 - 1.81 mg/l, 96 hours

ETHYL DIGLYME (CAS 112-36-7)

Aquatic

Crustacea	LC50	Harpacticoid copepod (Nitocra spinipes)	6000 - 7300 mg/l, 96 hours
Fish	LC50	Bleak (Alburnus alburnus)	> 10000 mg/l, 96 hours

SODIUM (CAS 7440-23-5)

Aquatic

Crustacea	EC50	Water flea (Daphnia magna)	1820 mg/l, 48 hours
			1640 mg/l, 48 hours
			1180 - 1840 mg/l, 21 days

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

BIPHENYL 4.01

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Not available.
Hazardous waste code	D001: Waste Flammable material with a flash point <140 F D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
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.

14. Transport information

DOT	
UN number	UN2920
UN proper shipping name	Corrosive liquids, flammable, n.o.s. (SODIUM BIPHENYL, ETHYL DIGLYME), MARINE POLLUTANT
Transport hazard class(es)	8
Subsidiary class(es)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Labels required	8, 3
Special provisions	B2, IB2, T11, TP2, TP27
Packaging exceptions	None
Packaging non bulk	202
Packaging bulk	243
IATA	
UN number	UN2920
UN proper shipping name	Corrosive liquid, flammable, n.o.s. (SODIUM BIPHENYL, ETHYL DIGLYME)
Transport hazard class(es)	8
Subsidiary class(es)	3
Packaging group	II
Environmental hazards	No
Labels required	Not available.
ERG Code	8F
Special precautions for user	Not available.
IMDG	
UN number	UN2920
UN proper shipping name	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (SODIUM BIPHENYL, ETHYL DIGLYME), MARINE POLLUTANT
Transport hazard class(es)	8
Subsidiary class(es)	3
Packaging group	II
Environmental hazards	
Marine pollutant	Yes
Labels required	Not available.
EmS	F-E, S-C
Special precautions for user	Not available.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available.
General information	DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

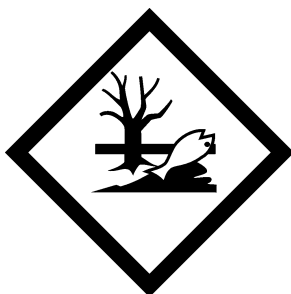
DOT



IATA; IMDG



Marine pollutant



15. Regulatory information

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

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

ETHYL DIGLYME (CAS 112-36-7)

1.0 % One-Time Export Notification only.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list.

CERCLA Hazardous Substance List (40 CFR 302.4)

SODIUM (CAS 7440-23-5)

LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

No

SARA 311/312 Hazardous chemical

No

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

DEA Exempt Chemical Mixtures Code Number

Not regulated.

Food and Drug Administration (FDA)

Not regulated.

US state regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US. Massachusetts RTK - Substance ListBIPHENYL (CAS 92-52-4)
SODIUM (CAS 7440-23-5)**US. New Jersey Worker and Community Right-to-Know Act**

BIPHENYL (CAS 92-52-4) 500 LBS

US. Pennsylvania RTK - Hazardous SubstancesBIPHENYL (CAS 92-52-4)
SODIUM (CAS 7440-23-5)**US. Rhode Island RTK**BIPHENYL (CAS 92-52-4)
SODIUM (CAS 7440-23-5)**US. California Proposition 65****US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Not listed.

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)	No
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 this product complies with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision**Issue date** August-22-2014**Version #** 01**Further information** Not available.

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available. 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.

Revision Information Product and Company Identification: Alternate Trade Names
Composition / Information on Ingredients: Ingredients
Physical & Chemical Properties: Multiple Properties
Transport Information: Proper Shipping Name/Packing Group