



German metal Surface treatment Chemicals Co.
Research and Development Department.
Detergent and disinfectants Division.

MATERIAL SAFETY DATA SHEET

Biostar®12 (Sodium Hypochlorite 12%)

MANUFACTURER:

German metal surface treatment (SUGEST)

P.O. Box 2951, Riyadh 11461, K.S.A.

Tel: (00966) (01) 4647711 (20 Lines)

Fax: (00966) (01) 2170866

1. Product and Company Identification

NAME: Biostar® 12 (Sodium Hypochlorite 12%)
USE : Used as disinfectant, biocide, and laundry bleacher.
CAS : 7681-52-9 **FORMULA:** NaOCl
Company German metal surface treatment chemicals Co.

2. Product Description

Biostar® 12 (Sodium Hypochlorite 12%) is a source of chlorine used for general purpose cleaning, sanitizing, bleaching and as a biocide for controlling growth of bacteria, algae and fungus for industrial and waste water treatment.

3. Hazards Identification

Emergency Overview

Danger! Strong oxidizer. Contact with other material may cause a fire. Harmful if swallowed, inhaled, or absorbed through the skin. Causes eye, skin, and respiratory tract irritation. Contact with acids liberates toxic gas. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Hygroscopic (absorbs moisture from the air).

Target Organs: Kidneys, liver, respiratory system, eyes, skin..

Potential Health Effects

- **Inhalation:** The vapor (chlorine) is an irritant to the mucous membranes and respiratory tract. Inhalation of dust will result in respiratory irritation. Inhalation of vapor (chlorine) can result in headaches, dizziness and possible nausea. May cause pulmonary oedema, pneumonitis and emphysema. Inhalation of high concentrations can result in permanent lung damage.
- **Skin contact:** Dermal exposure can cause severe irritation and/or burns characterized by redness, swelling and scab formation. Prolonged skin exposure may cause destruction of the dermis with impairment of the skin at site of contact to regenerate.
- **Eye contact:** This product is severely irritating to the eyes and may cause irreversible damage including burns and blindness.
- **Ingestion:** Irritation and/or burns can occur to the gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding and/or tissue ulceration.



4. Chemical Composition

Ingredient	CAS No	Percent
Sodium Hypochlorite	7681-52-9	12.0 – 15.0
Sodium Hydroxide	1310-73-2	0.1 – 0.2
Water	7732-18-5	To 100

5. Physical and Chemical Properties

Appearance	Yellowish to Greenish Liquid color
Odor	Pungent, chlorine
pH	11.0 – 13.0
Solubility in water	Completely soluble in water
Density @25 C	1.15 – 1.20 g / ml

6. First Aid Measures

Inhalation:

Remove victim from exposure - avoid becoming a casualty. If breathing labored and patient cyanotic (blue), ensure airways are clear and have qualified person give oxygen through a face mask. If breathing has stopped apply artificial respiration at once. In the event of cardiac arrest, apply external cardiac massage. For all but the most minor symptoms arrange for patient to be seen by a doctor as soon as possible - either on site or at the nearest hospital.

Skin contact:

Remove contaminated clothing and footwear. For skin contact, flush with large amounts of water. Seek immediate medical attention.

Eye contact:

In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.

Ingestion:

Seek medical advice. DO NOT induce vomiting unless directed to do so by medical personnel. Give one to two glasses of water or milk. Never give anything by mouth to a victim who is unconscious or is having convulsions.



7. Fire Fighting Measures

Fire: Not considered to be a fire hazard. Substance releases oxygen when heated, which may increase the severity of an existing fire.

Explosion: This solution is not considered to be an explosion hazard.

Fire Extinguishing Media: Flood with water or carbon dioxide (CO₂).

Special Information: Use NIOSH approved respirator with acid-type canister or use self-contained breathing apparatus. Strong oxidizer. Contact with combustibles may promote combustion.

Hazardous combustion products:

Acid and heat accelerate decomposition. Decomposition products may include chlorine.

Special information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.



8. Accidental Release Measures

Use personal protection recommended in Section 10 , isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:

Prevent further leakage or spillage if safe to do so. Wear appropriate personal protective equipment. Do not allow product to enter sewer, waterways , surface or ground water.

Clean-up methods:

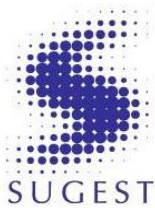
Vacuum or sweep up material and place into a suitable disposal container. Dispose of according to Federal, State and local governmental regulations.

Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth),and place in a chemical waste container.

DO NOT use combustible materials, such as saw dust.

DO NOT flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities.

DO NOT pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks or other sources of ignition.



9. Handling and Storage

Handling:

Avoid contact with eyes, skin and clothing. Avoid breathing mists or aerosols of this product. Provide adequate ventilation.

Use good personal hygiene practices.

Wash hands before eating, drinking, smoking, or using toilet facilities. Wash thoroughly after work using soap and water.

Storage:

Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials including acids, ammonia, bases, floor sweeping compounds, calcium hypochlorite, reducing agents, organic solvents and compounds, strong reducing agents, strong bases, moist air, water, combustible materials, strong oxidizing agents, and sources of ignition. Protect from heat, fire, high humidity, sparks, direct sunlight and moisture. Product is hygroscopic (absorbs moisture from the air). Store under inert atmosphere. Store away from foodstuffs. Ensure pallets are clean and free from oil. Do NOT store in corrosives area.

This product has classified as a moderate oxidizing hazard (NFPA 430, 2000).

Container Type Packaging must comply with requirements of Hazardous Substances (Packaging) Regulations 2001.

For information on product shelf life, please review labels on container.

10. Exposure Controls/Personal Protection

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Sodium Hypochlorite	0.5 ppm (chlorine) TWA 1 ppm STEL	0.5 ppm (chlorine)	2 mg / m ³ (STEL), 15 min	NONE
Sodium Hydroxide	2 mg / m ³ ceiling	2 mg / m ³ ceiling	0.5 mg/m ³ ERPG-1 5 mg / m ³ ERPG-2 50 mg / m ³ ERPG-3	NONE

Engineering controls:

Ventilation Requirements provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product. Supply sufficient replacement air to make up for air removed by exhaust systems.

Emergency shower and eyewash should be in close proximity.

Respiratory protection:

If ventilation is not sufficient to effectively prevent buildup of aerosols, mists or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

Short term filter device: Filter A/P3



Eyeface protection:

Wear chemical goggles; face shield (if splashing is possible) . **Do not wear contact lenses.**

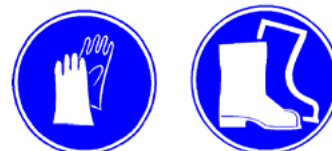
Skin protection:

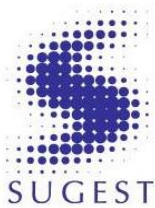
Chemical resistant, impermeable gloves. Gloves should be tested to determine suitability for prolonged contact. Use of impervious apron and **Footwear** boots are recommended.

Recommended gloves Natural rubber, NR - Polyvinyl chloride – Neoprene.

Recommended thickness of the material: ≥ 0.7 mm

Penetration time of glove material Time for permeation appr. 120 min





11. Stability and Reactivity

Stability

Unstable at temperatures above 40°C, in sunlight, and in contact with acid.

Conditions to Avoid: Incompatible materials, dust generation, combustible materials, exposure to moist air or water.

Incompatibilities with strong acids, ammonia, oxidizable materials, nickel, copper, tin, manganese, iron, aziridine, methanol, phenyl acetonitrile, cellulose, ethyleneimine, soaps and bisulfates.

Reactivity Data

Unstable at temperatures above 40°C, in sunlight, and in contact with acid.

Hazardous decomposition products:

Emits toxic fumes of chlorine when heated to decomposition. Sodium oxide at high temperatures. Hazardous gases/vapors produced are hypochlorous acid, chlorine and hydrochloric acid. Composition depends upon temperature and decrease in pH. Additional decomposition products, which depend on pH, temperature and time, are sodium chloride and chlorate, and oxygen.

Hazardous Polymerization

Will not occur

12. Toxicological information

Acute Oral LD50 : (rat) 3-5 mg/kg

Primary Skin Irritation: (rabbit) > 2 mg/kg

The toxicity and corrosivity of Sodium Hypochlorite is a function of concentration.

Industrial grades of higher concentrations than household bleach are more toxic and corrosive.

Aquatic Ecotoxicity Data

Fish:

LC50 (96 hr.) (Bluegill sunfish)

2.90 mg / L

LC50 (96 hr.) (Fathead minnow)

1.40 mg / L

LC50 (0.5 hr.) (Rainbow trout)

0.90 mg / L

Invertebrate:

LC50 (24 hr) Water Flea (ceriodaphnia sp. 0)

0.006 mg /L

LC50 (24 hr) Water Flea (daphnia magna)

0.07 - 0.7 mg / L

LC50 (96 hr) Water Flea (daphnia magna)

2.1 mg / L

LC50 (96 hr) Fresh Water Shrimp (gammarus fasciatus)

0.4 mg / L

LC50 (96 hr) No common name (nitocra spinipes)

0.40 mg / L

LC50 (96 hr) Grass Shrimp (palaemonetes pugio)

0.52 mg / L

Biodegradation: This material is inorganic and not subject to biodegradation.

NOTE: This material is harmful to fish, invertebrates, amphibians, and plants.

Chronic toxicity: Prolonged exposure may cause damage to the respiratory system. Chronic inhalation exposure may cause impairment of lung function and permanent lung damage.

Mutagenicity Sodium Hypochlorite has been shown to produce damage to genetic material when tested in vitro.

Studies in vivo have shown no evidence of mutagenic potential for this material. It is judged that the risk of genetic damage is insignificant for sodium hypochlorite because of its biological activity, lack of mutagenicity in vivo, and failure to produce carcinogenic response.

Carcinogenicity: None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as carcinogen.



German metal Surface treatment Chemicals Co.
Research and Development Department.
Detergent and disinfectants Division.

Reproductive toxicity: There are no known or reported effects on reproductive function or fetal development. Toxicological investigation indicates it does not affect reproductive function of fetal development.

Mobility: No information available on mobility for this product

Environmental Fate (Exposure): In fresh water, sodium hypochlorite breaks down rapidly into non-toxic compounds when exposed to sunlight. In seawater, chlorine levels decline rapidly; however, hypobromite (which is acutely toxic to aquatic organisms) is formed. EPA believes that the risk of acute exposure to aquatic organisms is sufficiently mitigated by precautionary labeling and National Pollutant Discharge Elimination System (NPDES) permit requirements.

Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.

May be an aesthetic nuisance due to color. Mammals and birds, exposed wildlife would be subject to skin irritation and burns due to the corrosive nature of this material.

Health Hazard & Toxicity :

Acute Toxicity	Category 3
Eye Corrosion	Category 1A
Skin Corrosion	Category 1B
Skin Irritation	Category 2
Mutagenicity	Category 1A
Carcinogenicity	Category 1B
Respiratory tract Irritation, single exposure	Category 3
Target Organ Toxicity (Repeated)	Category 1

Environmental

Aquatic Toxicity:

- Acute Category 1
- Chronic Category 1

13. Disposal Considerations

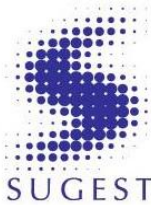
Disposal method:

Undiluted product is regulated under environmental and transportation laws as irritants. Disposal is according to all federal, state and local authorities for restrictions on disposal of chemical waste, manage chemical waste through an approved waste treatment facility, do not reuse empty container in accordance with current local community codes please recycle empty container whenever possible.

Product does not contain any prescribed substances under the Environmental Protection Act Regs (1991) but is classified as special waste under the Control of Substances (Special Waste) Regs 1996. Dilute with water and flush to sewer if local ordinances allow, otherwise, whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. For small quantities dilute with at least 1000 parts of water and pour down waste water drain (foul sewer). Rinse out empty containers thoroughly and recycle if facilities exist or dispose of as commercial waste. For larger quantities contact a licensed waste contractor.

Hazardous waste number:

If pH of material is equal to or greater than 12.5, the material is a RCRA Hazardous Waste D002, corrosive.



14. Transport information

Land and Sea Transport

UN Number: 1791
Shipping Name: Biostar® 12 Hazard Class: 8
Packing Group: III

15. Other Information

U.S. Federal Regulations

Section 311 of The Clean Water Act lists this product as a hazardous substance, which if discharged to water, may require immediate response to mitigate danger to public health and welfare. Spills of 100 pounds or more must be reported to the National Response Center at the following number: **1-800-424-8802**

Material is contained on a composite list as required under 101 (14) of CERCLA. Sodium Hypochlorite Solution is regulated by the USEPA under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as a pesticide product. 12.5% by weight Sodium Hypochlorite Solution produced by Kuehne Chemical Company, Inc. is registered with the USEPA under Registration Number 35317-20001.

OSHA: This material is considered hazardous by OSHA Hazard Communication Standard (29 CFR 1910.1200) (US).

TSCA (Toxic Substances Control Act): This product is not subject to export notification.

Other Standards

Health Rating: 3 - Severe

Flammability Rating: 0 - None

Reactivity Rating: 0 – 1 Nil to Slight

Contact Rating: 4 - Extreme (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Color Code: White (Corrosive)

Risk Phrase: 31, 34, 36, 38, 50 Safety Phrase: 1, 2, 26, 36, 37, 39, 45

WHMIS Classification: C, E, F

16. Packing

Biostar® 12: is available 30 Liters HDPE Cans, 1000 Liters IBC and Bulk

DISCLAIMER: *The data contained herein are furnished for information only and are believed to be reliable. However, SUGEST and its affiliates ("SUGEST") does not assume responsibility for any results obtained by persons over whose methods SUGEST has no control. It is the user's responsibility to determine the suitability of SUGEST's products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any SUGEST's products. In light of the foregoing, SUGEST specifically disclaims all warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, arising from sale or use of SUGEST's products. SUGEST further disclaims any liability for consequential or incidental damages of any kind, including lost profits.*