World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

MSDS No: M00145

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Name: Detergents Reagent Powder Pillows
Catalog Number: 100868

HACH LANGE GmbH
Willstätterstrasse 11
40549 Düsseldorf, Germany
+49-(0)211-52880

Emergency Telephone Numbers:
(Poison Information Center Main)
(+49 (0) 6131 19240) 24 HR

SDS Number: M00145
Chemical Name: Not applicable
Chemical Formula: Not applicable
Chemical Family: Not applicable
Use of the substance/preparation: Determination of detergents
CAS No.: Not applicable
Hazard: Causes moderate eye irritation.
Date of MSDS Preparation:
Day: 12
Month: 01
Year: 2006
Additional Emergency Response Numbers: Austria: +49 (0)6131 19240, Belgium: +32-(0)70-245245, France: +33 (0)1-40370404, Italy: +39-02-66101029, Netherlands: +31 -(0)30-2748888, Switzerland: +41-(0)1-2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

Other component
EEC Number: Not applicable
CAS No.: Not applicable
Percent Range: < 1,0
Percent Range Units: weight / weight
Ingredient EEC Symbol: Not applicable
Ingredient R phrase(s) (R phrase details given in Heading 16): Not applicable
TLV: Not established
PEL: Not established
EU Occupational Exposure Limits: Not established

Sodium Chloride
EEC Number: 2315983
CAS No.: 7647145
Percent Range: > 99,0
Percent Range Units: weight / weight
Ingredient EEC Symbol: Not applicable
Ingredient R phrase(s) (R phrase details given in Heading 16): Not applicable
TLV: Not established
PEL: Not established
EU Occupational Exposure Limits: 3 mg/m^3, Inhalable dust

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Purple powder
Odor: None
EU Symbols: Not applicable
R PHRASES: Not applicable

Protective Equipment:
Potential Health Effects:
Eye Contact (EC): Causes moderate irritation
Skin Contact (EC): Causes mild irritation
Skin Absorption (EC): No effects anticipated
Target Organs (SA E): Not applicable
Ingestion (EC): May cause: vomiting dehydration diarrhea blood pressure problems muscular twitching rigidity collapse death
Target Organs (Ing E): None Reported
Inhalation: No effects anticipated
Target Organs (Inh E): Not applicable
Medical Conditions Aggravated: Pre-existing: Eye conditions
Chronic Effects: None reported
Cancer / Reproductive Toxicity Information:
This product does NOT contain any IARC listed chemicals.

Additional Cancer / Reproductive Toxicity Information: In a laboratory test, mice given a 2% NaCl solution in place of drinking water during pregnancy produced hypertensive adult offspring. In a laboratory test, single subcutaneous injection of NaCl into pregnant mice @ 2500 mg/Kg caused fetal deaths and malformations.
Toxicologically Synergistic Products: None reported

4. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with soap and plenty of water for 15 minutes. Call physician if irritation develops.
Ingestion (First Aid): Give large quantities of water. Call physician immediately.
Inhalation: None required.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material will not burn. During a fire, this product decomposes to form toxic gases.
Hazardous Combustion Products: May emit acrid smoke and fumes. Toxic fumes of: sodium monoxide chlorides
Fire / Explosion Hazards: This product will not burn or explode.
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Use media appropriate to surrounding fire conditions
Extinguishing Media NOT To Be Used: Not applicable
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Stop spilled material from being released to the environment.
Clean-up Technique: Sweep up material. Dilute with a large excess of water. Flush the spilled material to the drain with a large excess of water. Decontaminate the area of the spill with a soap solution.
Evacuation Procedure: Evacuate as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

Storage: Keep container tightly closed when not in use.
Special Packaging Instructions: Not applicable
Use of the substance/preparation: Determination of detergents

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: safety glasses with top and side shields
Skin / Hand Protection: lab coat disposable latex gloves
Inhalation Protection: adequate ventilation
Precautionary Measures: Avoid contact with: eyes Wash thoroughly after handling.
TLV: Not established
PEL: Not established
EU Occupational Exposure Limits: 3 mg/m^3, Inhalable dust

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Purple powder
Physical State: Solid
Odor: None
pH: 5% solution = 6,3
Vapor Pressure: Not applicable
Vapor Density (air = 1): Not applicable
Boiling Point: Not applicable
Melting Point: 801 °C (1474 °F)
Flash Point: Not applicable
Method: Not applicable
Autoignition Temperature: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Specific Gravity (water = 1): 2,14
Evaporation Rate (water = 1): Not applicable
Volatile Organic Compounds Content: Not applicable
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
Water: Soluble
Acid: Practically insoluble
Other: Not determined
Metal Corrosivity:
Steel: Not determined
Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Excess moisture Extreme temperatures
Reactivity / Incompatibility: Incompatible with: lithium bromine trifluoride
Hazardous Decomposition: Heating to decomposition releases: chlorides
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: None reported
LC50: None reported
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: None reported

Mutation Data: None reported
Reproductive Effects Data: None reported
--
Ingredient Toxicological Data: Sodium Chloride: Oral rat LD50 = 3000 mg/kg

This product does NOT contain any IARC listed chemicals.

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
No ecological data available for the ingredients of this product.

13. DISPOSAL CONSIDERATIONS

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

I.C.A.O.:
I.C.A.O. Proper Shipping Name: Not Currently Regulated
--
ICAO Hazard Class: NA
ICAO Subsidiary Risk: NA
ICAO UN/ID Number: NA
ICAO Packing Group: NA
I.M.O.:
I.M.O. Proper Shipping Name: Not Currently Regulated
--
I.M.O. Hazard Class: NA
I.M.O. Subsidiary Risk: NA
I.M.O. UN Number: NA
I.M.O. Packing Group: NA
A.D.R.:
A.D.R. Proper Shipping Name: Not Currently Regulated
--
A.D.R Hazard Class: NA
A.D.R. Subsidiary Risk: NA
A.D.R. UN-Number:: NA
A.D.R. Packing Group: NA
Additional Information: This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit Hazard Class: 9 UN Number 3316

15. REGULATORY INFORMATION

National Inventories:
EEC Inventory Status: All ingredients used to make this product are listed on EINECS / ELINCS.
EEC Number: Not applicable
EEC LABEL COPY:
EU Symbols: Not applicable
R PHRASES: Not applicable
S PHRASES:

16. OTHER INFORMATION

References: Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. Technical Judgment. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Vendor Information. Patty, Frank A. Industrial Hygiene and Toxicology, 3rd Revised Edition. Volume 2. New York: A Wiley-Interscience Publication, 1981. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. In-house information.
R PHRASES: Not applicable
Use of the substance/preparation: Determination of detergents
Revision Summary: Updates in Section(s) European MSDS Only 2,

---

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

MSDS No: M00484

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Name: Benzene
Catalog Number: 1444017

HACH LANGE GmbH
Willstätterstrasse 11
40549 Düsseldorf, Germany
+49-(0)211-52880

Emergency Telephone Numbers:
(Poison Information Center Main)
(+49 (0) 6131 19240) 24 HR

SDS Number: M00484
Chemical Name: Benzene
Chemical Formula: C_6H_6
Chemical Family: Aromatic Compounds
Use of the substance/preparation: Laboratory Reagent
CAS No.: 71-43-2
Hazard: Extremely Flammable. Highly toxic. Vapors harmful. Recognized carcinogen. May cause irritation. Experimental mutagen.
Date of MSDS Preparation:
Day: 12
Month: 01
Year: 2006
Additional Emergency Response Numbers: Austria: +49 (0)6131 19240, Belgium: +32-(0)70-245245, France: +33-(0)1-40370404, Italy: +39-02-66101029, Netherlands: +31 -(0)30-2748888, Switzerland: +41-(0)1-2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

Benzene
EEC Number: 2007537
CAS No.: 71-43-2
Percent Range: 100,0
Percent Range Units: volume / volume
Ingredient EEC Symbol: F - HIGHLY FLAMMABLE T - TOXIC
Ingredient R phrase(s) (R phrase details given in Heading 16): R 45 R 48/23/24/25 R 11
TLV: 1 ppm
PEL: 10 ppm
EU Occupational Exposure Limits: 1 ppm (3,2 mg/m^3); Skin Notation

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: Clear, colorless liquid
Odor: Mild hydrocarbon
EU Symbols: F - HIGHLY FLAMMABLE T - TOXIC
R PHRASES: R 45: May cause cancer. R 11: Highly flammable. R 48/23/24/25: Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.

Protective Equipment:
Potential Health Effects:
Eye Contact (EC): Causes moderate irritation
Skin Contact (EC): Causes moderate irritation Can defat the skin causing: skin redness, irritation or dermatitis

Skin Absorption (EC): Toxic Will be absorbed through the skin. Effects similar to those of ingestion

Target Organs (SA E): Central nervous system Blood Liver Kidneys Bone marrow

Ingestion (EC): Toxic Causes: gastrointestinal disturbances nausea vomiting Benzene causes central nervous effects including: headache, confusion, drunkenness, dizziness, giddiness, ringing in the ears, fatigue, lethargy sleepiness, central nervous stimulation and then depression, and coma. Benzene can cause: tightening of the muscles, constriction of the chest, chemical pneumonitis, breathlessness, reversible liver and kidney damage, ventricular fibrillation, respiratory collapse, and death.

Target Organs (Ing E): Blood Bone marrow Central nervous system Liver Kidneys

Inhalation: Toxic Causes: respiratory tract irritation nausea vomiting Benzene causes central nervous effects including: headache, confusion, drunkenness, dizziness, giddiness, ringing in the ears, fatigue, lethargy sleepiness, central nervous stimulation and then depression, and coma. Benzene can cause: tightening of the muscles, constriction of the chest, chemical pneumonitis, breathlessness, reversible liver and kidney damage, ventricular fibrillation, respiratory collapse, and death.

Target Organs (Inh E): Blood Bone marrow Central nervous system Liver Kidneys

Medical Conditions Aggravated: Pre-existing: Eye conditions Skin conditions Respiratory conditions Bone marrow diseases Kidney conditions Liver conditions blood disorders Central nervous system diseases

Chronic Effects: Benzene causes: anemia, bone marrow effects, central nervous effects, tachycardia, nosebleeds, bleeding of the gums and weight loss. Benzene can accumulate in the body's tissues. Chronic overexposure may cause leukemia

Cancer / Reproductive Toxicity Information:

IARC Group 1: Recognized Carcinogen
Benzene

Additional Cancer / Reproductive Toxicity Information: an experimental mutagen. an experimental teratogen.

Toxicologically Synergistic Products: Benzene's toxic effects are enhanced when it is mixed with toluene and gasoline. Benzene, when combined with lead, may suppress the production of heme (the oxygen-carrying component of blood) more than either chemical alone.

4. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.

Skin Contact (First Aid): Wash skin with soap and plenty of water for 15 minutes. Call physician immediately. Remove contaminated clothing.

Ingestion (First Aid): Do not induce vomiting. Call physician immediately.

Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

5. FIRE FIGHTING MEASURES

Flammable Properties: Extremely Flammable. Material will readily ignite at room temperatures. Vaporizes easily at normal temperatures. Vapors may form explosive mixture with air. Vapors can travel to a source of ignition and flash back.

Hazardous Combustion Products: Toxic fumes of: carbon monoxide, carbon dioxide.

Fire / Explosion Hazards: Very flammable. Do not expose to flames. Do not expose to sparks or other ignition sources. May react violently with: oxidizers

Static Discharge: None reported.

Mechanical Impact: None reported

Extinguishing Media: Carbon dioxide Dry chemical. Alcohol foam. Do NOT use water.

Extinguishing Media NOT To Be Used: Not applicable Not applicable Not applicable Do NOT use water.

Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Containers can build up pressure if exposed to heat. Evacuate area and fight fire from a safe distance.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Containment Technique: Releases of this material may contaminate the environment. Remove all combustible material from spill area. Remove all ignition and spark-creating sources from the spill area. Cover spilled liquid with a commercially available flammable liquid sorbent such as vapor barrier blanket or activated carbon to avoid evolution of fumes. Vapors may travel to a source of ignition and flash back. May be ignited by: heat, sparks, or flames. Material will float on water creating a fire hazard. Dike the material to create a barrier to combustibles.

Clean-up Technique: Eliminate all sources of ignition. Do not breathe the fumes. Cover with an inert material, such as sand. Use only non-sparking tools. Sweep up material. Incinerate material at an E.P.A. approved hazardous waste facility. Decontaminate the area of the spill with a soap solution.
Evacuation Procedure: Evacuate general area (50 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled. If conditions warrant, increase the size of the evacuation.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes skin clothing Do not breathe mist or vapors. Use with adequate ventilation. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
Storage: Protect from: heat sparks, flames and other ignition sources Keep container tightly closed when not in use.
Special Packaging Instructions: Not applicable
Use of the substance/preparation: Laboratory Reagent

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Have a safety shower nearby. Maintain adequate ventilation to keep vapor level below TWAfor chemicals in this product. Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: chemical splash goggles
Skin / Hand Protection: nitrile gloves lab coat
Inhalation Protection: laboratory fume hood
Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: mist/vapor Use with adequate ventilation. Wash thoroughly after handling. Protect from: heat sparks, flames and other ignition sources
TLV: 1 ppm
PEL: 10 ppm
EU Occupational Exposure Limits: 1 ppm (3,2 mg/m^3); Skin Notation

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless liquid
Physical State: Liquid
Odor: Mild hydrocarbon
pH: Not Applicable
Vapor Pressure: 100 mm @ 26° C (79° F)
Vapor Density (air = 1): 2,77
Boiling Point: 80° C (176° F)
Melting Point: Not determined
Flash Point: -11° C (12° F)
Method: Closed cup
Autoignition Temperature: 562° C (1044° F)
Flammability Limits:
Lower Explosion Limits: 1,3%
Upper Explosion Limits: 7,5%
Specific Gravity (water = 1): 0,879
Evaporation Rate (water = 1): Not determined
Volatile Organic Compounds Content: 100%
Partition Coefficient (n-octanol / water): Not determined
Solubility:
Water: Insoluble
Acid: Not determined
Other: Soluble in most organic solvents
Metal Corrosivity:
Steel: Not determined
Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Conditions to Avoid: Contact with heat, sparks, open flames or other ignition sources.
Reactivity / Incompatibility: May react violently in contact with: oxidizers Incompatible with: acids chlorine
Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: carbon dioxide carbon monoxide
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: Oral rat LD50 = 930 mg/kg, Oral mouse LD50 = 4700 mg/kg, Oral Human LDLo = 50 mg/kg, See RTECS for further information.
LC50: Inhalation rat LC50 = 10000 ppm/7H, Inhalation Human LCLo = 2000 ppm/5M, See RTECS for further information.
Dermal Toxicity Data: Dermal rabbit LD50 > 9400 mg/kg, Dermal guinea pig LD50 > 9400 mg/kg
Skin and Eye Irritation Data: Skin: rabbit 15 mg/24H MILD, rabbit 20mg/24H MODERATE; Eye: rabbit 88 mg MODERATE, rabbit 2 mg/24H SEVERE
Mutation Data: Human DNA inhibition - Leukocytes 2200 µmol, Human DNA inhibition - HeLa Cells 2200 µmol, Human Sister Chromatid exchange - Lymphocytes 200 µmol, See RTECS for further information.
Reproductive Effects Data: Inhalation rat TCLo = 670 mg/m^3/24H - effects on fertility, Inhalation rat TCLo = 50 ppm/24H extra embroyonic structures - fetotoxicity, Inhalation rat TCLo = 150 ppm/24H effects on fertility - musculoskeletal abnormalities
Oral mouse TCLo = 9 mg/kg effects on fertility, Oral mouse TCLo = 6500 mg/kg effects on newborn growth statisitics, See RTECS for further information.
Ingredient Toxicological Data: --
Not applicable
IARC Group 1: Recognized Carcinogen
Benzene

12. ECOLOGICAL INFORMATION

Product Ecological Information: BOD_5 = 2,18; COD = 2,15; minnow LC50 = 5-7 mg/l/6H; bluegill sunfish LC50 = 20 mg/l/24-48H; Algae: Chlorella vulgaris 50% inhibition of cell multiplication at 92 mg/l

Ingredient Ecological Information: --
Not applicable

13. DISPOSAL CONSIDERATIONS

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

I.C.A.O.:
I.C.A.O. Proper Shipping Name: Benzene
--
ICAO Hazard Class: 3
ICAO Subsidiary Risk: NA
ICAO UN/ID Number: UN1114
ICAO Packing Group: II
I.M.O.:
I.M.O. Proper Shipping Name: Benzene
--
I.M.O. Hazard Class: 3
I.M.O. Subsidiary Risk: NA
I.M.O. UN Number: UN1114
I.M.O. Packing Group: II
A.D.R.:

A.D.R. Proper Shipping Name: Benzene
--
A.D.R Hazard Class: 3
A.D.R. Subsidiary Risk: NA
A.D.R. UN-Number:: 1114
A.D.R. Packing Group: II
Additional Information: This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit Hazard Class: 9 UN Number 3316

15. REGULATORY INFORMATION

National Inventories:
EEC Inventory Status: EINECS Listed: Yes
EEC Number: 2007537
EEC LABEL COPY:
EU Symbols: F - HIGHLY FLAMMABLE T - TOXIC
R PHRASES: R 45: May cause cancer. R 11: Highly flammable. R 48/23/24/25: Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
S PHRASES: S 53: Avoid exposure - obtain special instructions before use. S 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

16. OTHER INFORMATION

References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. IARC Monographs on the Evaluation of the Carcinogenic Risks to Humans. World Health Organization (Volumes 1-42) Supplement 7. France: 1987. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. Patty, Frank A. Industrial Hygiene and Toxicology, 3rd Revised Edition. Volume 2. New York: A Wiley-Interscience Publication, 1981. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. In-house information. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548)- Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. Sixth Annual Report on Carcinogens, 1991. U.S. Department of Health and Human Services. Rockville, MD: Technical Resources, Inc. 1991. Technical Judgment. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. Vendor Information. Verschueren, Karel. Handbook of Environmental Data on Organic Chemicals. New York: Van Nostrand Reinhold Co., 1977. EU Occupational Exposure Limits On Line.
R PHRASES: R 45: May cause cancer. R 11: Highly flammable. R 48/23/24/25: Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
Use of the substance/preparation: Laboratory Reagent
Revision Summary: Updates in Section(s) 14,

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

MSDS No: M00489

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Name: Buffer Solution, Sulfate Type
Catalog Number: 45249

HACH LANGE GmbH
Willstätterstrasse 11
40549 Düsseldorf, Germany
+49-(0)211-52880

Emergency Telephone Numbers:
(Poison Information Center Main)
(+49 (0) 6131 19240) 24 HR

SDS Number: M00489
Chemical Name: Not applicable
Chemical Formula: Not applicable
Chemical Family: Not applicable
Use of the substance/preparation: Buffer
CAS No.: Not applicable
Hazard: Causes eye burns.
Date of MSDS Preparation:
Day: 12
Month: 01
Year: 2006
Additional Emergency Response Numbers: Austria: +49 (0)6131 19240, Belgium: +32-(0)70-245245, France: +33-(0)1-40370404, Italy: +39-02-66101029, Netherlands: +31 -(0)30-2748888, Switzerland: +41-(0)1-2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

Demineralized Water
EEC Number: 2317912
CAS No.: 7732-18-5
Percent Range: 65,0 - 75,0
Percent Range Units: volume / volume
Ingredient EEC Symbol: Not applicable
Ingredient R phrase(s) (R phrase details given in Heading 16): Not applicable
TLV: Not established
PEL: Not established
EU Occupational Exposure Limits: Not established

Sodium Bisulfate
EEC Number: 2316657
CAS No.: 10034-88-5
Percent Range: 10,0 - 20,0
Percent Range Units: weight / volume
Ingredient EEC Symbol: Xi - IRRITATING
Ingredient R phrase(s) (R phrase details given in Heading 16): R 41
TLV: Not established
PEL: Not established
EU Occupational Exposure Limits: 3 mg/m^3, Inhalable dust

Sodium Sulfate
EEC Number: 2318209
CAS No.: 7757-82-6
Percent Range: 10,0 - 20,0

Percent Range Units: weight / volume
Ingredient EEC Symbol: Not applicable
Ingredient R phrase(s) (R phrase details given in Heading 16): Not applicable
TLV: Not established
PEL: Not established
EU Occupational Exposure Limits: 3 mg/m^3, Inhalable dust

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: Clear, colorless liquid
Odor: None
EU Symbols: Xi - IRRITATING
R PHRASES: R 41: Risk of serious damage to eyes.

Protective Equipment:
Potential Health Effects:
Eye Contact (EC): Causes severe irritation
Skin Contact (EC): May cause irritation
Skin Absorption (EC): None Reported
Target Organs (SA E): None Reported
Ingestion (EC): May cause: gastrointestinal tract irritation
Target Organs (Ing E): None Reported
Inhalation: No effects anticipated
Target Organs (Inh E): Not applicable
Medical Conditions Aggravated: Pre-existing: Eye conditions Skin conditions
Chronic Effects: None reported
Cancer / Reproductive Toxicity Information:
This product does NOT contain any IARC listed chemicals.

Additional Cancer / Reproductive Toxicity Information: Tests performed on this product / components gave insufficient evidence to classify for carcinogenicity.
Toxicologically Synergistic Products: None reported

4. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with plenty of water for 15 minutes. Remove contaminated clothing. Call physician if irritation develops.
Ingestion (First Aid): Do not induce vomiting. Give 1-2 glasses of water. Call physician immediately. Never give anything by mouth to an unconscious person.
Inhalation: None required.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material will not burn.
Hazardous Combustion Products: This material will not burn.
Fire / Explosion Hazards: None reported
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Use media appropriate to surrounding fire conditions
Extinguishing Media NOT To Be Used: Not applicable
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment.
Clean-up Technique: Cover spilled material with an alkali, such as soda ash or sodium bicarbonate. Scoop up slurry into a large beaker. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a soap solution.
Evacuation Procedure: Evacuate as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes skin clothing Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
Storage: Keep container tightly closed when not in use.
Special Packaging Instructions: Not applicable
Use of the substance/preparation: Buffer

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: safety glasses with top and side shields
Skin / Hand Protection: disposable latex gloves lab coat
Inhalation Protection: adequate ventilation
Precautionary Measures: Avoid contact with: eyes skin clothing Wash thoroughly after handling. Protect from: freezing
TLV: Not established
PEL: Not established
EU Occupational Exposure Limits: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless liquid
Physical State: Liquid
Odor: None
pH: 2,0 @ 20°C
Vapor Pressure: Not determined
Vapor Density (air = 1): Not determined
Boiling Point: 100°C (212°F)
Melting Point: Not determined
Flash Point: Not applicable
Method: Not applicable
Autoignition Temperature: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Specific Gravity (water = 1): 1,198
Evaporation Rate (water = 1): 0,54
Volatile Organic Compounds Content: Not applicable
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
Water: Soluble
Acid: Soluble
Other: Not determined
Metal Corrosivity:
Steel: 0,124 in/yr
Aluminum: 0,012 in/yr

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Evaporation Extreme temperatures
Reactivity / Incompatibility: May react violently in contact with: calcium hypochlorite
Hazardous Decomposition: Toxic fumes of: sodium oxides sulfur oxides
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: None reported
LC50: None reported
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: None reported
Mutation Data: None reported
Reproductive Effects Data: None reported
--
Ingredient Toxicological Data: Sodium Bisulfate: Oral rat LD_{50} = 2828 mg/kg, Oral rat LD_{50} = 1600 mg/kg; Sodium Sulfate: Oral mouse LD_{50} = 5989 mg/kg

This product does NOT contain any IARC listed chemicals.

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: Sodium Sulfate: Aquatic Toxicity- TLm 13500 mg/L bluegill sunfish / 96 hours, TLm 16500 mg/L mosquito fish / 96 hours

13. DISPOSAL CONSIDERATIONS

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

I.C.A.O.:
I.C.A.O. Proper Shipping Name: Not Currently Regulated
--
ICAO Hazard Class: NA
ICAO Subsidiary Risk: NA
ICAO UN/ID Number: NA
ICAO Packing Group: NA
I.M.O.:
I.M.O. Proper Shipping Name: Not Currently Regulated
--
I.M.O. Hazard Class: NA
I.M.O. Subsidiary Risk: NA
I.M.O. UN Number: NA
I.M.O. Packing Group: NA
A.D.R.:
A.D.R. Proper Shipping Name: Not Currently Regulated
--
A.D.R Hazard Class: NA
A.D.R. Subsidiary Risk: NA

A.D.R. UN-Number:: NA
A.D.R. Packing Group: NA
Additional Information: This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit Hazard Class: 9 UN Number 3316

15. REGULATORY INFORMATION

National Inventories:
EEC Inventory Status: All ingredients used to make this product are listed on EINECS / ELINCS.
EEC Number: Not applicable
EEC LABEL COPY:
EU Symbols: Xi - IRRITATING
R PHRASES: R 41: Risk of serious damage to eyes.
S PHRASES: S 24: Avoid contact with skin. S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

16. OTHER INFORMATION

References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Technical Judgment. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. In-house information.
R PHRASES: R 41: Risk of serious damage to eyes.
Use of the substance/preparation: Buffer
Revision Summary: Updates in Section(s) 14,

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.