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

*MSDS No: M00046*

# SAFETY DATA SHEET

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

***Product Name:*** SulfaVer ® 4 Sulfate Reagent
***Catalog Number:*** 1206599

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:*** M00046
***Chemical Name:*** Not applicable
***Chemical Formula:*** Not applicable
***Chemical Family:*** Not applicable
***Use of the substance/preparation:*** Sulfate determination
***CAS No.:*** Not applicable
***Hazard:*** Causes severe eye irritation.
***Date of MSDS Preparation:***
***Day:*** 23
***Month:*** May
***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

**Barium Chloride**
***EEC Number:*** 2337881
***CAS No.:*** 10326-27-9
***Percent Range:*** 40,0 - 50,0
***Percent Range Units:*** weight / weight
***Ingredient EEC Symbol:*** T - TOXIC
***Ingredient R phrase(s) (R phrase details given in Heading 16):*** R 20 R 25
***TLV:*** 0,5 mg/m$^3$ as Ba
***PEL:*** 0,5 mg/m$^3$ as Ba
***EU Occupational Exposure Limits:*** 0,5 mg/m$^3$ as Ba

**Citric Acid**
***EEC Number:*** 2010691
***CAS No.:*** 77-92-9
***Percent Range:*** 55,0 - 65,0
***Percent Range Units:*** weight / weight
***Ingredient EEC Symbol:*** Xi - IRRITATING
***Ingredient R phrase(s) (R phrase details given in Heading 16):*** R 36
***TLV:*** Not established
***PEL:*** Not established

***EU Occupational Exposure Limits:*** 3 mg/$m^3$, Inhalable dust

## 3. HAZARDS IDENTIFICATION

***Emergency Overview:***
***Appearance:*** White powder
***Odor:*** None
***EU Symbols:*** T - TOXIC
***R PHRASES:*** R 36: Irritating to eyes. R 20: Harmful by inhalation. R 25: Toxic if swallowed.

***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):*** Harmful Barium compounds cause central nervous system stimulation followed by central nervous system depression. Barium compounds cause stimulation of the muscles which may result in muscle twitching, cramps and weakness; blood pressure effects; disturbance in the heart's action and respiratory weakness. Causes: abdominal pain dizziness Can cause: paralysis of tongue limb immobility death kidney damage
***Target Organs (Ing E):*** Cardiovascular system Central nervous system Muscles Kidneys
***Inhalation:*** Harmful Barium compounds cause central nervous system stimulation followed by central nervous system depression. Barium compounds cause stimulation of the muscles which may result in muscle twitching, cramps and weakness; blood pressure effects, disturbance in the heart's action and respiratory paralysis. Causes: abdominal pain dizziness Can cause: paralysis of tongue limb immobility death kidney damage
***Target Organs (Inh E):*** Cardiovascular system Central nervous system Muscles Kidneys
***Medical Conditions Aggravated:*** None reported
***Chronic Effects:*** Citric acid chronic overexposure may cause effects due to the ability of citric acid to chelate metals, which could impair the body's ability to absorb calcium and iron. Chronic overexposure may cause kidney damage
***Cancer / Reproductive Toxicity Information:***
This product does NOT contain any IARC listed chemicals.

***Additional Cancer / Reproductive Toxicity Information:*** None reported
***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. Call physician if irritation develops.
***Ingestion (First Aid):*** Induce vomiting using syrup of ipecac or by sticking finger down throat. Give 1 tablespoon of epsom salt in a glass of water. Call physician immediately. Never give anything by mouth to an unconscious person.
***Inhalation:*** Remove to fresh air. Give artificial respiration if necessary. Call physician.

## 5. FIRE FIGHTING MEASURES

***Flammable Properties:*** Can burn in fire, releasing toxic vapors. During a fire, irritating and highly toxic gases may be generated by thermal decomposition.
***Hazardous Combustion Products:*** Toxic fumes of: carbon monoxide, carbon dioxide. chlorides
***Fire / Explosion Hazards:*** May react violently with: strong oxidizers
***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:*** Releases of this material may contaminate the environment. Stop spilled material from being released to the environment.
***Clean-up Technique:*** Avoid contact with spilled material. Sweep up material. Dispose of material in an E.P.A. approved hazardous waste facility. Decontaminate the area of the spill with a soap solution.
***Evacuation Procedure:*** Evacuate local area (15 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 dust. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
***Storage:*** Store away from: oxidizers Protect from: moisture
***Special Packaging Instructions:*** Not applicable
***Use of the substance/preparation:*** Sulfate determination

## 8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

***Engineering Controls:*** Have an eyewash station nearby. Use a fume hood to avoid exposure to dust, mist or vapor. 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 Do not breathe: dust Wash thoroughly after handling. Protect from: moisture Keep away from: oxidizers
***TLV:*** Not established
***PEL:*** Not established
***EU Occupational Exposure Limits:*** 3 $mg/m^3$, Inhalable dust

## 9. PHYSICAL / CHEMICAL PROPERTIES

***Appearance:*** White powder
***Physical State:*** Solid
***Odor:*** None
***pH:*** of a 5% solution ~ 2,0
***Vapor Pressure:*** Not applicable
***Vapor Density (air = 1):*** Not applicable
***Boiling Point:*** Not applicable
***Melting Point:*** ~ 124 °C (255 °F)
***Flash Point:*** Not applicable
***Method:*** Not applicable
***Autoignition Temperature:*** Not determined
***Flammability Limits:***

***Lower Explosion Limits:*** Not applicable
***Upper Explosion Limits:*** Not applicable
***Specific Gravity (water = 1):*** ~2
***Evaporation Rate (water = 1):*** Not applicable
***Volatile Organic Compounds Content:*** Not applicable
***Partition Coefficient (n-octanol / water):*** Not applicable
***Solubility:***
***Water:*** Soluble
***Acid:*** Not determined
***Other:*** Not determined
***Metal Corrosivity:***
***Steel:*** Not Applicable
***Aluminum:*** Not Applicable

## 10. STABILITY / REACTIVITY

***Chemical Stability:*** Stable when stored under proper conditions.
***Conditions to Avoid:*** Excess moisture Extreme temperatures
***Reactivity / Incompatibility:*** Incompatible with: oxidizers bromine trifluoride 2-furan percarboxylic acid metal nitrates metal nitrites
***Hazardous Decomposition:*** Heating to decomposition releases toxic and/or corrosive fumes of: carbon dioxide carbon monoxide chlorides
***Hazardous Polymerization:*** Will not occur.

## 11. TOXICOLOGICAL INFORMATION

***Product Toxicological Data:***
***LD50:*** Oral rat LD50 = 680 mg/kg
***LC50:*** None reported
***Dermal Toxicity Data:*** None reported
***Skin and Eye Irritation Data:*** Citric Acid: Standard Draize Test Skin rabbit 500 mg/24 hour = MODERATE. Citric Acid: Standard Draize Test Eye rabbit 750 µg/24 hour = SEVERE.
***Mutation Data:*** None reported
***Reproductive Effects Data:*** None reported
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***Ingredient Toxicological Data:*** Barium Chloride Oral rat LD50 = 118 mg/kg; Citric Acid Oral rat LD50 = 6730 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
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***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
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***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
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***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:*** T - TOXIC
***R PHRASES:*** R 36: Irritating to eyes. R 20: Harmful by inhalation. R 25: Toxic if swallowed.
***S PHRASES:*** S 37/39: Wear suitable gloves and eye / face protection. S 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

## 16. OTHER INFORMATION

***References:*** TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. In-house information. Technical Judgment. Outside Testing. Vendor Information. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Patty, Frank A. Industrial Hygiene and Toxicology, 3rd Revised Edition. Volume 2. New York: A Wiley-Interscience Publication, 1981. NIOSH Registry of Toxic Effects of Chemical Substances, 1985-86. Cincinnati: U.S. Department of Health and Human Services, April, 1987.
***R PHRASES:*** R 36: Irritating to eyes. R 20: Harmful by inhalation. R 25: Toxic if swallowed.
***Use of the substance/preparation:*** Sulfate determination
***Revision Summary:*** European MSDS Only Updates in Heading(s) 2, 15,

**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.**