

SAFETY DATA SHEET

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

Product Name: NitraVer ® 5 Nitrate Reagent
Catalog Number: 1403499

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: M00049

Chemical Name: Not applicable

Chemical Formula: Not applicable

Chemical Family: Not applicable

Use of the substance/preparation: Determination of nitrate

CAS No.: Not applicable

Hazard: Toxic. Cumulative poison. Recognized carcinogen. Experimental teratogen. May cause irritation.

Date of MSDS Preparation:

Day: 23

Month: February

Year: 2007

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

Potassium Phosphate, Monobasic

EEC Number: 2319134

CAS No.: 7778-77-0

Percent Range: 30,0 - 40,0

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/m³, Inhalable dust

Other components, each

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

Magnesium Sulfate

EEC Number: 2312982

CAS No.: 10034-99-8

Percent Range: 5,0 - 15,0

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/m³, Inhalable dust

Cadmium

EEC Number: 2311528

CAS No.: 7440-43-9

Percent Range: 10,0 - 20,0

Percent Range Units: weight / weight

Ingredient EEC Symbol: N - Dangerous for the Environment

Ingredient R phrase(s) (R phrase details given in Heading 16): R 45 R 26 R 48/23 R 25 R 62 R 63 R 68 R 50/53

TLV: 0,01 mg/m³

PEL: 0,005 mg/m³

EU Occupational Exposure Limits: 0,015 mg Cd/m³ as dust, aerosol

Gentisic Acid

EEC Number: 2077185

CAS No.: 490-79-9

Percent Range: 15,0 - 25,0

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/m³, Inhalable dust

Sulfanilic Acid

EEC Number: 2044825

CAS No.: 121-57-3

Percent Range: 25,0 - 35,0

Percent Range Units: weight / weight

Ingredient EEC Symbol: Xi - IRRITATING

Ingredient R phrase(s) (R phrase details given in Heading 16): R 36/38 R 43

TLV: Not established

PEL: Not established

EU Occupational Exposure Limits: 3 mg/m³, Inhalable dust

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Gray powder

Odor: None

EU Symbols: T - TOXIC N - DANGEROUS FOR THE ENVIRONMENT

R PHRASES: R 45: May cause cancer. R 23: Toxic by inhalation. R 36/38: Irritating to eyes and skin. R 43: May cause sensitization by skin contact. R 48/20/22: Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed. R 62: Possible risk of impaired fertility. R 63: Possible risk of harm to the unborn child. R 68: Possible risk of irreversible effects. R 51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Protective Equipment:

Potential Health Effects:

Eye Contact (EC): May cause irritation

Skin Contact (EC): May cause irritation May cause allergic reaction

Skin Absorption (EC): Harmful if absorbed through the skin

Target Organs (SA E): None Reported

Ingestion (EC): Harmful May cause: salivation vomiting abdominal pain anemia diarrhea kidney failure central nervous system effects cardiac depression

Target Organs (Ing E): Kidneys Reproductive system Central nervous system

Inhalation: Harmful May cause: coughing headache nausea vomiting chest pain pneumonitis respiratory tract irritation lung damage kidney damage

Target Organs (Inh E): Lungs Kidneys Reproductive system

Medical Conditions Aggravated: Pre-existing: Respiratory conditions Kidney conditions Liver conditions

Chronic Effects: Chronic overexposure may cause cancer liver damage kidney damage bone damage (osteosclerosis)

Cancer / Reproductive Toxicity Information:

An ingredient of this mixture is: IARC Group 1: Recognized Carcinogen

Cadmium

Additional Cancer / Reproductive Toxicity Information: Contains: an ACGIH A2 suspected human carcinogen.

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. Call physician if irritation develops.

Ingestion (First Aid): Administer milk or beaten egg whites at frequent intervals. Induce vomiting using syrup of ipecac or by sticking finger down throat. Never give anything by mouth to an unconscious person. Call physician immediately.

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.

Hazardous Combustion Products: Toxic fumes of: cadmium oxide nitrogen oxides. sulfur oxides. phosphorus oxides

Fire / Explosion Hazards: May react violently with: strong oxidizers hydrazoic acid ammonium nitrate

Static Discharge: None reported.

Mechanical Impact: None reported

Extinguishing Media: Water. Carbon dioxide Dry chemical.

Extinguishing Media NOT To Be Used: Not applicable Not applicable 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 breathing spilled material. 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 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 dust. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product. Use with adequate ventilation.

Storage: Store between 10° and 25°C. Keep away from: oxidizers hydrazoic acid ammonium nitrate

Special Packaging Instructions: Not applicable

Use of the substance/preparation: Determination of nitrate

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Maintain adequate ventilation to keep vapor level below TWA for chemicals in this product. Use a fume hood to avoid exposure to dust, mist or vapor.

Personal Protective Equipment:

Eye Protection: safety glasses with top and side shields

Skin / Hand Protection: disposable latex gloves lab coat

Inhalation Protection: laboratory fume hood and / or half-face respirator with HEPA filter

Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: dust Wash thoroughly after handling. Keep away from: oxidizers

TLV: Not established

PEL: Not established

EU Occupational Exposure Limits: 3 mg/m³, Inhalable dust

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Gray powder

Physical State: Solid

Odor: None

pH: 5% solution = 2,8

Vapor Pressure: Not applicable

Vapor Density (air = 1): Not applicable

Boiling Point: Not applicable

Melting Point: 180°C; 356°F

Flash Point: Not applicable

Method: Not applicable

Autoignition Temperature: Not available

Flammability Limits:

Lower Explosion Limits: Not applicable

Upper Explosion Limits: Not applicable

Specific Gravity (water = 1): 2,0

Evaporation Rate (water = 1): Not applicable

Volatile Organic Compounds Content: Not applicable

Partition Coefficient (n-octanol / water): Not applicable

Solubility:

Water: Soluble

Acid: Soluble

Other: Not determined

Metal Corrosivity:

Steel: 0,081 in/yr
Aluminum: 0,000 in/yr

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Conditions to Avoid: Heat

Reactivity / Incompatibility: Incompatible with: oxidizers hydrazoic acid ammonium nitrate sulfur

Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: phosphorus oxides sulfur oxides carbon dioxide carbon monoxide nitrogen oxides

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:

LD50: Oral rat LD50 = 1500 mg/kg

LC50: None reported

Dermal Toxicity Data: None reported

Skin and Eye Irritation Data: Sulfanilic acid: Skin rabbit 500 mg/24H - Standard Draize - MILD; Eye rabbit 100 mg/24H - Standard Draize - MODERATE

Mutation Data: Cadmium - Cytogenetic analysis - hamster ovary 1 µmol/l

Reproductive Effects Data: Cadmium: Oral male rat TDLo = 155 mg/kg - 13 weeks pre-mating - effects on newborn growth and behavior; Oral female rat TDLo = 23 mg/kg - 1-22 days after conception - blood and lymphatic system abnormalities

Magnesium Sulfate: Intraperitoneal rat TDLo = 750 mg/kg (17-21D pregnant): TER Sharp reduction in both the number and weight of offspring was observed

Ingredient Toxicological Data: Cadmium: Oral rat LD50 = 225 mg/kg, Inhalation rat LC50 = 25 mg/m³/30 min; Gentisic acid Oral rat LD50 = 800 mg/kg; Sulfanilic acid Oral rat LD50 = 12,3 g/kg; KH₂PO₄ Oral rat LD50 = 7100 mg/kg

An ingredient of this mixture is: IARC Group 1: Recognized Carcinogen
Cadmium

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: Environmentally Hazardous Substance, Solid, nos
(Cadmium mixture)

A.D.R Hazard Class: 9

A.D.R. Subsidiary Risk: NA

A.D.R. UN-Number:: 3077

A.D.R. Packing Group: III

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 ALSO
NOTE: If the National Competent Authority declares this product an environmental hazard by Special Provision 909 (IMDG) and Special Provision A97 (IATA) the classification may be UN3077 or UN3082.

15. REGULATORY INFORMATION

National Inventories:

EEC Inventory Status: All ingredients used to make this product are listed on EINECS / ELINCS or are placed on the market in quantities less than 10 kg per year.

EEC Number: Not applicable

EEC LABEL COPY:

EU Symbols: T - TOXIC N - DANGEROUS FOR THE ENVIRONMENT

R PHRASES: R 45: May cause cancer. R 23: Toxic by inhalation. R 36/38: Irritating to eyes and skin. R 43: May cause sensitization by skin contact. R 48/20/22: Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed. R 62: Possible risk of impaired fertility. R 63: Possible risk of harm to the unborn child. R 68: Possible risk of irreversible effects. R 51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S PHRASES: S 53: Avoid exposure - obtain special instructions before use. S 24: Avoid contact with skin. S 35: This material and its container must be disposed of in a safe way. S 36/37: Wear suitable protective clothing and gloves. S 39: Wear 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: 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. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. IARC Monographs on the Evaluation of the Carcinogenic Risks to Humans. World Health Organization (Volumes 1-42) Supplement 7. France: 1987. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. Technical Judgment. In-house information.

R PHRASES: R 45: May cause cancer. R 23: Toxic by inhalation. R 36/38: Irritating to eyes and skin. R 43: May cause sensitization by skin contact. R 48/20/22: Harmful: danger of serious damage to health by

prolonged exposure through inhalation and if swallowed. R 62: Possible risk of impaired fertility. R 63: Possible risk of harm to the unborn child. R 68: Possible risk of irreversible effects. R 51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Use of the substance/preparation: Determination of nitrate

Revision Summary: Updates in Section(s) 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.

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