

# SAFETY DATA SHEET

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

**Product Name:** NitraVer ® 5 Nitrate Reagent  
**Catalog Number:** 2106169

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

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## 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/m<sup>3</sup>, 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/m<sup>3</sup>, 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/m<sup>3</sup>

*PEL:* 0,005 mg/m<sup>3</sup>

*EU Occupational Exposure Limits:* 0,015 mg Cd/m<sup>3</sup> 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/m<sup>3</sup>, 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/m<sup>3</sup>, Inhalable dust

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### 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

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## 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.

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## 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.

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## 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.

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## 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

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## 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/m<sup>3</sup>, Inhalable dust

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## 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

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## 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.

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## 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/m<sup>3</sup>/30 min; Gentisic acid Oral rat LD50 = 800 mg/kg; Sulfanilic acid Oral rat LD50 = 12,3 g/kg; KH<sub>2</sub>PO<sub>4</sub> Oral rat LD50 = 7100 mg/kg

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

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## 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.

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## 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.

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## 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.

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## 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).

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## 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,

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**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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