MSDS No: M01064

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

SAFETY DATA SHEET

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

Product Name: Total Inorganic Nitrogen Base Concentrate Catalog Number: 204059

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: M01064
Chemical Name: Not applicable
Chemical Formula: Not applicable
Chemical Family: Not applicable
Use of the substance/preparation: Standard solution
CAS No.: Not applicable
Hazard: Causes severe 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: +39-0266101029, Netherlands: +31 -(0)30-2748888, Switzerland: +41-(0)1-2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

Sodium Hydroxide

EEC Number: 2151855 CAS No.: 1310732 Percent Range: 10,0 - 20,0 Percent Range Units: weight / volume Ingredient EEC Symbol: C - CORROSIVE Ingredient R phrase(s) (R phrase details given in Heading 16): R 35 TLV: 2 mg/m³ PEL: 2 mg/m³ EU Occupational Exposure Limits: 2 mg/m³

 Demineralized Water

 EEC Number: 2317912

 CAS No.: 7732185

 Percent Range: 80,0 - 90,0

 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

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Clear, colorless Odor: None EU Symbols: C - CORROSIVE R PHRASES: R 35: Causes severe burns.

Protective Equipment:
Potential Health Effects:
Eye Contact (EC): Causes severe burns
Skin Contact (EC): Causes severe burns May cause: scarring
Skin Absorption (EC): None Reported
Target Organs (SA E): None Reported
Ingestion (EC): Causes: severe burns
Target Organs (Ing E): None Reported
Inhalation: Causes: severe burns
Target Organs (Inh E): None Reported
Inhalation: Causes: severe burns
Target Organs (Inh E): None Reported
Medical Conditions Aggravated: Pre-existing: Eye conditions Respiratory conditions Skin conditions
Chronic Effects: Chronic overexposure may cause destruction of any tissue contacted
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 for 15 minutes. Remove contaminated clothing. Call physician immediately. *Ingestion (First Aid):* Do not induce vomiting. Give 1-2 glasses of water. Never give anything by mouth to an unconscious person. Call physician immediately. *Inhalation:* Remove to fresh air.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material will not burn.
Hazardous Combustion Products: This material will not burn.
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. 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. Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment. Dike the spill to contain material for later disposal.

Clean-up Technique: Cover spilled material with a dry acid, such as citric or boric. Scoop up slurry into a large beaker. Dilute with a large excess of water. Adjust to a pH between 6 and 9. Use sulfuric or citric acid to lower pH. Use soda ash or sodium bicarbonate to increase pH. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a weak acid 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 mist or vapors. Wash thoroughly after handling. Use with adequate ventilation. Maintain general industrial hygiene practices when using this product. *Storage:* Keep container tightly closed when not in use. Store between 10° and 25°C. Keep away from: acids / acid fumes. *Special Packaging Instructions:* Not applicable

Use of the substance/preparation: Standard solution

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Have a safety shower nearby. Use general ventilation to minimize exposure to mist, vapor or dust.
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: mist/vapor Wash thoroughly after handling. Use with adequate ventilation. Keep away from: acids/acid fumes heat
TLV: Not established
PEL: Not established
EU Occupational Exposure Limits: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless Physical State: Liquid Odor: None **pH:** > 11 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): 1,181 *Evaporation Rate (water = 1):* Not determined Volatile Organic Compounds Content: Not applicable Partition Coefficient (n-octanol / water): Not applicable Solubility: Water: Miscible Acid: Miscible Other: Not determined Metal Corrosivity: Steel: 0,00 in/yr (0,00 mm/yr) *Aluminum:* > 20 in/yr (> 508 mm/yr)

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
 Conditions to Avoid: Extreme temperatures
 Reactivity / Incompatibility: Incompatible with: acids
 Hazardous Decomposition: No hazardous decomposition products known.
 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: Sodium Hydroxide: Eye irritation rabbit: 50 µg/24 hr = SEVERE, 1 mg/24 hr = SEVERE, 100 mg rinse = SEVERE; Skin irritation rabbit: 500 mg/24 hr = SEVERE. Mutation Data: None reported Reproductive Effects Data: None reported

Ingredient Toxicological Data: Sodium Hydroxide: Oral rat LDLo = 500 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: Sodium Hydroxide Solution ICAO Hazard Class: 8 ICAO Subsidiary Risk: NA ICAO UN/ID Number: UN1824 ICAO Packing Group: II I.M.O.: I.M.O. Proper Shipping Name: Sodium Hydroxide Solution I.M.O. Hazard Class: 8 I.M.O. Subsidiary Risk: NA I.M.O. UN Number: UN1824 I.M.O. Packing Group: II A.D.R.: A.D.R. Proper Shipping Name: Sodium Hydroxide Solution A.D.R Hazard Class: 8 A.D.R. Subsidiary Risk: NA A.D.R. UN-Number:: 1824 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: All ingredients used to make this product are listed on EINECS / ELINCS. *EEC Number:* Not applicable

EEC LABEL COPY:

EU Symbols: C - CORROSIVE

R PHRASES: R 35: Causes severe burns.

S PHRASES: S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S 36/37/39: Wear suitable protective clothing, 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: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. 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. Sixth Annual Report on Carcinogens, 1991. U.S. Department of Health and Human Services. Rockville, MD: Technical Resources, Inc. 1991. Technical Judgment. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. *R PHRASES:* R 35: Causes severe burns.

Use of the substance/preparation: Standard solution *Revision Summary:* Updates in Section(s) 14,

Legend:

w/w - weight/weight
w/v - weight/volume
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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SAFETY DATA SHEET

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

Product Name: Total Inorganic Nitrogen Reductant Ampules *Catalog Number:* 2605150

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: M01277 Chemical Name: Not applicable Chemical Formula: Not applicable Chemical Family: Not applicable Use of the substance/preparation: Laboratory Reagent CAS No.: Not applicable Hazard: Causes 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: +39-0266101029, Netherlands: +31 -(0)30-2748888, Switzerland: +41-(0)1-2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

Hydrochloric Acid

EEC Number: 2315957 CAS No.: 7647040 Percent Range: 1,0 - 10,0 Percent Range Units: volume / volume Ingredient EEC Symbol: C - CORROSIVE Ingredient R phrase(s) (R phrase details given in Heading 16): R 34 TLV: 5 ppm ceiling PEL: 5 ppm ceiling EU Occupational Exposure Limits: Hydrogen chloride: 5 ppm (8 mg/m³); STEL 10 ppm (15³)

Demineralized Water

EEC Number: 2317912 CAS No.: 7732185 Percent Range: 80,0 - 90,0 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

Titanium Trichloride - Aluminum Chloride Complex (3:1)

EEC Number: 2344218 *CAS No.:* 12003-13-3 *Percent Range:* < 10,0 MSDS No: M01277

Percent Range Units: weight / volume Ingredient EEC Symbol: C - CORROSIVE Ingredient R phrase(s) (R phrase details given in Heading 16): R 34 TLV: Not established PEL: Not established EU Occupational Exposure Limits: 3 mg/m³, Inhalable dust

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: Clear, colorless liquid
Odor: Acidic
EU Symbols: C - CORROSIVE
R PHRASES: R 34: Causes burns.

Protective Equipment: Potential Health Effects: *Eye Contact (EC):* Causes burns Skin Contact (EC): Causes burns Skin Absorption (EC): None Reported Target Organs (SA E): None Reported Ingestion (EC): Causes: burns abdominal pain nausea vomiting Target Organs (Ing E): None Reported Inhalation: Causes: burns May cause: difficult breathing choking pneumonitis Target Organs (Inh E): None Reported Medical Conditions Aggravated: Pre-existing: Eye conditions Skin conditions Respiratory conditions Chronic Effects: None reported Cancer / Reproductive Toxicity Information: An ingredient of this mixture is: IARC Group 3: Non-classifiable Hydrochloric acid 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. *Skin Contact (First Aid):* Wash skin with plenty of water for 15 minutes. Remove contaminated clothing. Call physician immediately. *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:* Remove to fresh air.

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: 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. Dilute with a large excess of water. Adjust to a pH between 6 and 9. Use sulfuric or citric acid to lower pH. Use soda ash or sodium bicarbonate to increase pH. 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 mist or vapors. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
Storage: Protect from: heat air Store under argon.
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 general industrial hygiene practices when using this product.
Personal Protective Equipment:

Eye Protection: chemical splash goggles
Skin / Hand Protection: disposable latex gloves
Inhalation Protection: laboratory fume hood

Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: mist/vapor Wash thoroughly after handling. Protect from: air heat
TLV: Not established
PEL: Not established

EU Occupational Exposure Limits: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless liquid Physical State: Liquid **Odor:** Acidic *pH*: < 0,5 Vapor Pressure: Not determined *Vapor Density (air = 1):* Not determined *Boiling Point:* 102° C (216° 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): 1,245 *Evaporation Rate (water = 1):* Not determined Volatile Organic Compounds Content: Not applicable Partition Coefficient (n-octanol / water): Not applicable Solubility: Water: Miscible Acid: Miscible Other: Not determined Metal Corrosivity: Steel: 69,682 in/yr Aluminum: 6,9383 in/yr

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Conditions to Avoid: Extreme temperatures Exposure to air. *Reactivity / Incompatibility:* Incompatible with: oxidizers strong bases *Hazardous Decomposition:* Heating to decomposition releases: hydrogen chloride *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: Hydrochloric Acid: Oral rabbit LD50 = 900 mg/kg, Inhalation rat LC50 = 3124 ppm

An ingredient of this mixture is: IARC Group 3: Non-classifiable Hydrochloric acid

12. ECOLOGICAL INFORMATION

Product Ecological Information: --

No ecological data available for this product.

Ingredient Ecological Information: HCl: LC100 trout 10 mg/L 24-hr; LC50 shrimp 100 to 330 ppm/48-hr (salt water); LC50 Starfish 100 to 330 mg/L/48-hr; LC50 cockle 330 to 1000 mg/L/48-hr; TLm mosquito fish 282 ppm/96-hr (fresh water); LC50 goldfish 178 mg/L

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: Corrosive Liquid, Acidic, Inorganic, N.O.S. (Titanium Trichloride/Hydrochloric Acid) ICAO Hazard Class: 8 ICAO Subsidiary Risk: NA ICAO UN/ID Number: UN3264 ICAO Packing Group: II I.M.O.: I.M.O. Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (Titanium Trichloride/Hydrochloric Acid) I.M.O. Hazard Class: 8 I.M.O. Subsidiary Risk: NA I.M.O. UN Number: UN3264 I.M.O. Packing Group: II A.D.R.: A.D.R. Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (Titanium Trichloride/Hydrochloric Acid) A.D.R Hazard Class: 8 A.D.R. Subsidiary Risk: NA A.D.R. UN-Number:: 3264 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: All ingredients used to make this product are listed on EINECS / ELINCS.
EEC Number: None
EEC LABEL COPY:
EU Symbols: C - CORROSIVE
R PHRASES: R 34: Causes burns.
S PHRASES: S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S 28a:
After contact with skin, wash immediately with plenty of water. S 45: In case of accident or if you feel unwell, seek

16. OTHER INFORMATION

References: Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Vendor Information. In-house information. 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. Technical Judgment.

R PHRASES: R 34: Causes burns.

Use of the substance/preparation: Laboratory Reagent Revision Summary: Updates in Section(s) 14,

medical advice immediately (show the label where possible).

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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