SAFETY DATA SHEET

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

**Product Name:** TanniVer® 3 Tannin-Lignin Reagent  
**Catalog Number:** 256032

**HACH LANGE GmbH**  
Willstätterstrasse 11  
40549 Düsseldorf, Germany  
(+49 (0) 6131 19240) 24 HR

**Emergency Telephone Numbers:**  
(Poison Information Center Main)

**SDS Number:** M00460

**Chemical Name:** Not applicable

**Chemical Formula:** Not applicable

**Chemical Family:** Not applicable

**Use of the substance/preparation:** Determination of Tannin/Lignin

**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 -02 -66101029, Netherlands: +31 -(0)30-2748888, Switzerland: +41 -(0)1-2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

**Lithium Sulfate**

**EEC Number:** 2338204  
**CAS No.:** 10102-25-7  
**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/m³, Inhalable dust

**Hydrochloric Acid**

**EEC Number:** 2315957  
**CAS No.:** 7647-01-0  
**Percent Range:** 1.0 - 5.0  
**Percent Range Units:** weight / weight  
**Ingredient EEC Symbol:** Not applicable  
**Ingredient R phrase(s) (R phrase details given in Heading 16):** Not applicable  
**TLV:** 5 ppm ceiling  
**PEL:** 5 ppm ceiling  
**EU Occupational Exposure Limits:** Hydrogen chloride: 5 ppm (8 mg/m³); STEL 10 ppm (15 ³)

**Sodium Molybdate**

**EEC Number:** 2315517  
**CAS No.:** 10102-40-6  
**Percent Range:** 1.0 - 5.0  
**Percent Range Units:** weight / volume
3. HAZARDS IDENTIFICATION

**Emergency Overview:**
- **Appearance:** Clear, yellow liquid
- **Odor:** None
- **EU Symbols:** Not applicable
- **R PHRASES:** Not applicable

**Protective Equipment:**
- **Eye Contact (EC):** None reported

**Potential Health Effects:**
Skin Contact (EC): None reported
Skin Absorption (EC): None Reported
Target Organs (SA E): None Reported
Ingestion (EC): May cause: irritation of the mouth and esophagus drowsiness weakness blurred vision anemia gastrointestinal disturbances nausea diarrhea central nervous system effects respiratory arrest circulatory collapse coma
Target Organs (Ing E): Circulatory system Central nervous system
Inhalation: May cause: irritation of nose and throat difficult breathing drowsiness blurred vision central nervous system effects respiratory arrest circulatory disturbances coma
Target Organs (Inh E): Central nervous system Circulatory system
Medical Conditions Aggravated: Pre-existing: Eye conditions Skin conditions Respiratory conditions Impaired pulmonary function such as obstructive airway diseases.
Chronic Effects: Lithium compounds have been implicated in development of aplastic anemia. Signs of lithium poisoning include dehydration, extreme weight loss, fine tremor of hands, nausea, vomiting and diarrhea. Chronic overexposure may cause central nervous system effects enzyme activity effects pulmonary fibrosis.
Cancer / Reproductive Toxicity Information:
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. 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: Does not burn, but may melt in a fire, releasing toxic fumes.
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. Dilute with a large excess of water. 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 local area (15 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled.

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.
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:** 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. Protect from: heat Keep away from: metals wood

**TLV:** Not established

**PEL:** Not established

**EU Occupational Exposure Limits:** Not established

9. PHYSICAL / CHEMICAL PROPERTIES

**Appearance:** Clear, yellow liquid

**Physical State:** Liquid

**Odor:** None

**pH:** 1.0

**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):** 1.172

**Evaporation Rate (water = 1):** 0.59

**Volatile Organic Compounds Content:** Not applicable

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

**Solubility:**
- **Water:** Soluble
- **Acid:** Soluble
- **Other:** Not determined

**Metal Corrosivity:**
- **Steel:** 0.610 in/yr
- **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: strong bases metals wood

**Hazardous Decomposition:** Heating to decomposition releases toxic and/or corrosive fumes of: chlorides 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 Tungstate: Oral rat LD50 = 1190 mg/kg; H₃PO₄: Oral rat LD50 = 1530 mg/kg;  
HCl: Oral rabbit LD50 = 900 mg/kg, Inhal. LC50 = 5124 ppm; Sodium Molybdate: Oral rat LD50 = 4000 mg/kg; Lithium  
Sulfate: Oral mouse LD50 = 1190 mg/kg  
IARC Group 3: Non-classifiable  
Hydrochloric acid

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### 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

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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:** Corrosive Liquid, Acidic, Inorganic, N.O.S.  
(Hydrochloric Acid/Phosphoric Acid Solution)  
**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.  
(Hydrochloric Acid/Phosphoric Acid Solution)  
**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.  
(Hydrochloric Acid/Phosphoric Acid Solution)  
**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

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### 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:** Not applicable

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### 16. OTHER INFORMATION


**R PHRASES:** Not applicable

**Use of the substance/preparation:** Determination of Tannin/Lignin

**Revision Summary:** Updates in Section(s) 14.

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**Legend:**

- NA - Not Applicable
- ND - Not Determined
- NV - Not Available
- 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: Sodium Carbonate Solution
Catalog Number: 67549

HACH LANGE GmbH
Willstätterstrasse 11
40549 Düsseldorf, Germany
(+49 (0) 6131 19240) 24 HR

SDS Number: M00465
Chemical Name: Not applicable
Chemical Formula: Not applicable
Chemical Family: Not applicable
Use of the substance/preparation: Determination of Tannin/Lignin
CAS No.: Not applicable
Hazard: May cause 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

Demineralized Water
EEC Number: 2317912
CAS No.: 7732-18-5
Percent Range: 70,0 - 80,0
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 Carbonate
EEC Number: 2078388
CAS No.: 497-19-8
Percent Range: 20,0 - 30,0
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/m³, Inhalable dust

Sodium Tartrate
EEC Number: 2127733
CAS No.: 6106-24-7
Percent Range: 1,0 - 5,0
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/m³, Inhalable dust

### 3. HAZARDS IDENTIFICATION

**Emergency Overview:**
- **Appearance:** Clear, colorless liquid
- **Odor:** None
- **EU Symbols:** Not applicable
- **R PHRASES:** Not applicable

**Protective Equipment:**

**Potential Health Effects:**
- **Eye Contact (EC):** May cause irritation
- **Skin Contact (EC):** May cause irritation
- **Skin Absorption (EC):** No effects anticipated
  - **Target Organs (SA E):** Not applicable
- **Ingestion (EC):** May cause: gastrointestinal tract irritation, nausea
  - **Target Organs (Ing E):** None Reported
- **Inhalation:** No effects anticipated
  - **Target Organs (Inh E):** Not applicable

**Medical Conditions Aggravated:** None reported

**Chronic Effects:** None reported

**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):** Give large quantities of water. Call physician immediately.

**Inhalation:** None required.

### 5. FIRE FIGHTING MEASURES

**Flammable Properties:** Material will not burn.

**Hazardous Combustion Products:** None reported

**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 a dry acid, such as citric or boric. Scoop up slurry into a large beaker. Adjust to a pH between 6 and 9 with an acid, such as sulfuric or citric. Flush reacted material to the drain with a large excess of water.

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. 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 Tannin/Lignin

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: 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. Wash thoroughly after handling.
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: 10.6
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): 1.186
Evaporation Rate (water = 1): 0.60
Volatile Organic Compounds Content: Not applicable
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
Water: Soluble
Acid: Soluble
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: Evaporation Extreme temperatures
Reactivity / Incompatibility: None reported
Hazardous Decomposition: None reported
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 Carbonate: Oral rat LD₅₀ = 4090 mg/kg. Sodium Tartrate: Oral rabbit LD₅₀ = 5290 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:** Not applicable

## 16. OTHER INFORMATION


**R PHRASES:** Not applicable

**Use of the substance/preparation:** Determination of Tannin/Lignin

**Revision Summary:** Updates in Section(s) 14,

---

**Legend:**

- NA - Not Applicable
- ND - Not Determined
- NV - Not Available
- 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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