

Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 02/01/2024

Reviewed on 02/01/2024

1 Identification

- **Product identifier**
- **Trade name: DPD 1 Reagent**
- **Catalogue number:** 424443, 471020, 471021, 471026, 471020-N
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Corrosive to Metals 1 H290 May be corrosive to metals.



GHS07

Skin Irritation 2 H315 Causes skin irritation.
Eye Irritation 2A H319 Causes serious eye irritation.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).
- **Hazard pictograms**



GHS05

- **Signal word** Warning
- **Hazard statements**
H290 May be corrosive to metals.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
- **Precautionary statements**
P280 Wear protective gloves / eye protection.
P234 Keep only in original container.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352 If on skin: Wash with plenty of water.
- **Other hazards** No further relevant information available.

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3 Composition/information on ingredients

- **Chemical characterization: Mixtures**

- **Description:** sulfuric acid solution

- **Composition and Information on Ingredients:**

Cancer Status IARC: Strong inorganic acid mists containing sulphuric acid can cause cancer.

Percent ranges are used due to the confidential product information.

CAS: 7664-93-9 EINECS: 231-639-5 Index number: 016-020-00-8 RTECS: WS5600000	sulphuric acid ⚠ Corrosive to Metals 1, H290; Skin Corrosion 1A, H314	5–10%
CAS: 6283-63-2 EINECS: 228-500-6 RTECS: SS 9625000	N,N-Diethyl-p-phenylenediamine sulfate (1:1) ⚠ Acute Toxicity - Oral 4, H302; Acute Toxicity - Dermal 4, H312; Skin Irritation 2, H315; Eye Irritation 2A, H319; Specific Target Organ Toxicity - Single Exposure 3, H335	≤2.5%

- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- **Description of first aid measures**

- **General information:** Immediately remove any clothing soiled by the product.

- **After inhalation:** Supply fresh air and to be sure call for a doctor.

- **After skin contact:**

Immediately rinse with plenty of water.

If skin irritation continues, consult a doctor.

- **After eye contact:** Rinse opened eye for several minutes (at least 15 min) under running water. Then consult a doctor.

- **After swallowing:**

Rinse out mouth and then drink 1-2 glasses of water.

Seek medical treatment.

- **Most important symptoms and effects, both acute and delayed**

allergic reactions

after inhalation:

mucosal irritations, cough, breathing difficulty

after swallowing:

irritations

sickness

vomiting

after swallowing of large amounts:

Danger of gastric perforation.

diarrhoea

methaemoglobinaemia

- **Danger:** Danger of circulatory collapse.

- **Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

- **Special hazards arising from the substance or mixture**

The product is not combustible.

Formation of toxic gases is possible during heating or in case of fire.

Sulfur oxides (SO_x)

- **Advice for firefighters**

- **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

- **Additional information**

Collect contaminated fire fighting water separately. It must not enter the sewage system.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

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Ambient fire may liberate hazardous vapours.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
- **Advice for non-emergency personnel:**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
- **Advice for emergency responders:** Protective equipment: see section 8
- **Environmental precautions:** Do not allow product to reach sewage system or any water course.
- **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Use neutralizing agent.
Absorb with liquid-binding material (sand, diatomite, universal binders).
Dispose contaminated material as waste according to section 13.
- **Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling**
- **Advice on safe handling:**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Hygiene measures:**
Avoid contact with the skin.
Avoid contact with the eyes.
Take off immediately all contaminated clothing.
Wash hands before breaks and at the end of work.
Do not eat, drink or smoke when using this product.
- **Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Keep only in original container.
- **Information about storage in one common storage facility:**
Store away from metals.
Do not store together with alkalis (caustic solutions).
- **Further information about storage conditions:**
Protect from heat and direct sunlight.
Protect from exposure to the light.
Protect from humidity and water.
- **Recommended storage temperature:** 6°C - 10°C (42,8°F - 50°F)
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

CAS: 7664-93-9 sulphuric acid

PEL (USA)	Long-term value: 1 mg/m ³
REL (USA)	Long-term value: 1 mg/m ³
TLV (USA)	Long-term value: 0.2* mg/m ³ *as thoracic fraction, A2
EL (Canada)	Long-term value: 0.2 mg/m ³ thoracic, ACGIH A2; IARC 1
EV (Canada)	Long-term value: 0.2 mg/m ³

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- **Additional information:** The lists that were valid during the creation were used as basis.
- **Engineering measures:** No further data; see section 7.
- **Personal protective equipment:**
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
- **Breathing equipment:** Use respiratory protective device against the effects of fume/dust/aerosol.
- **Recommended filter device for short term use:** Filter P2
- **Protection of hands:**
Protective gloves
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
- **Penetration time of glove material**
Value for the permeation: Level ≤ 1 (10 min)
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**
Safety glasses
use against the effects of fumes / dust
- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment:** Avoid release to the environment.

9 Physical and chemical properties

· Information on basic physical and chemical properties

- | | |
|---|---|
| · Appearance: | Solution |
| · Form / Physical state: | Solution |
| · Color: | Colorless |
| · Odor: | Odorless |
| · Odor threshold: | Not applicable. |
| · pH-value at 20°C (68°F): | < 1 |
| · Melting point/freezing point: | Not determined. |
| · Initial boiling point and boiling range: | Not determined. |
| · Flash point: | Not applicable. |
| · Flammability (solid, gas): | The product is not combustible. |
| · Auto igniting: | Not applicable. |
| · Decomposition temperature: | Not determined. |
| · Auto-ignition temperature: | Product is not self-igniting. |
| · Danger of explosion: | Product does not present an explosion hazard. |
| · Flammability or explosive limits: | |
| Lower: | Not applicable. |
| Upper: | Not applicable. |
| · Oxidizing properties: | none |
| · Vapor Pressure: | Not determined. |
| · Density at 20°C (68°F): | 1.09 g/cm ³ (9.1 lbs/gal) |
| · Relative density: | Not determined. |
| · Vapor density: | Not determined. |
| · Evaporation rate: | Not determined. |
| · Solubility(ies) | |
| · Water: | Fully miscible. |
| · Partition coefficient (n-octanol/water): | Not applicable (mixture). |
| · Viscosity: | Not determined. |
| · Kinematic: | Not determined. |
| · Other information | |
| · Solids content: | < 2.5 % |
| · Solvent content: | |
| · Organic solvents: | 0.0 % |
| · Water: | > 90 % |

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- **Information with regard to physical hazard classes**

- **Corrosive to metals**

May be corrosive to metals.

Information on incompatible materials can be found in Sections 7 and 10. acc. to "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fifth revised Edition"

- **Corrosion Rate of Metal:**

- **Corrosion rate (steel)**

34.87 mm/a

10 Stability and reactivity

- **Reactivity** see section "Possibility of hazardous reactions"

- **Chemical stability** Stable at ambient temperature (room temperature).

- **Possibility of hazardous reactions**

Reacts with metals forming hydrogen (Danger of explosion in case of large amounts!)

Corrosive action on metals.

Heating occurs when water is added.

Reacts with reducing agents.

Reacts with acids and alkali (lyes).

Reacts with ammonia (NH₃).

- **Conditions to avoid** Strong heating (decomposition)

- **Incompatible materials:**

metals

combustible materials

organic solvents

- **Hazardous decomposition products:** see section 5

11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:** Based on available data, the classification criteria are not met.

- **LD/LC50 values that are relevant for classification:**

CAS: 7664-93-9 sulphuric acid

Oral	LD50	2140 mg/kg (rat) (IUCLID)
Inhalative	LC 50	510 mg/m ³ /2h (rat) IUCLID

CAS: 6283-63-2 N,N-Diethyl-p-phenylenediamine sulfate (1:1)

Oral	LD50	497 mg/kg (rat) (MERCK)
Dermal	LD50	1100 mg/kg (ATE)

- **Primary irritant effect:**

- **on the skin:** Causes skin irritation.

- **on the eye:** Causes serious eye irritation.

- **Information on components:**

Skin irritation testing performed on 10% sulfuric acid showed slight to no irritation effects (GESTIS).

CAS 6283-63-2: DPD may cause allergic skin reaction

CAS 7664-93-9: chronic: dermatitis

- **Sensitization:** Based on available data, the classification criteria are not met.

- **Information on components:** CAS 6283-63-2: Sensitization possible in predisposed persons.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

CAS: 7664-93-9 sulphuric acid

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- **NTP (National Toxicology Program)**

CAS: 7664-93-9 sulphuric acid

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· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

· Other information:

see section 8 / 15

Cancer Status of Sulfuric acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen, (IARC category 1). This classification applies only to mists containing sulfuric acid and not to sulfuric acid or sulfuric acid solutions.

A2 (Suspected for humans) by ACGIH

· Synergistic Products: None

· CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction): The following statements refer to the mixture:

· Germ cell mutagenicity Based on available data, the classification criteria are not met.

· Carcinogenicity Based on available data, the classification criteria are not met.

· Reproductive toxicity Based on available data, the classification criteria are not met.

· STOT (specific target organ toxicity) -single exposure Based on available data, the classification criteria are not met.

· STOT (specific target organ toxicity) -repeated exposure Based on available data, the classification criteria are not met.

· Aspiration hazard Based on available data, the classification criteria are not met.

· Additional toxicological information:

Mists may be irritant to the mucous membranes and upper respiratory tract.

CAS: 7664-93-9 sulphuric acid

(source: GESTIS)

Main toxic effects

Acute: Irritation up to chemical burns to the mucous membranes and skin, danger of serious damage to the eyes and lungs

Chronic: Irritation to the eyes and airways, erosion of the teeth, damage to the skin

Further Information:

Concentrated S. differs considerably from dilute Sulfuric acid with regard to chemical properties and effects.

With increased dilution Sulfuric acid acts less aggressively.

CAS: 6283-63-2 N,N-Diethyl-p-phenylenediamine sulfate (1:1)

(source: GESTIS)

Main toxic effects of CAS 93-05-0 4-Amino-N,N-diethylaniline:

Acute: Irritative effects to the mucosae and the skin, sensitising effects;

Chronic: Skin diseases. Only insufficient information available on the systemic effects.

12 Ecological information

· Toxicity
· Aquatic toxicity:
CAS: 7664-93-9 sulphuric acid

EC50 >100 mg/l/48h (Daphnia magna) (OECD 202)

(ECHA)

LC50 16–29 mg/l/96h (bluegill)

(Merck)

· Bacterial toxicity: sulfates toxic > 2.5 g/l

· Other information:

Toxic for fish:

Sulfates > 7 g/l

· Persistence and degradability No further relevant information available.

· Bioaccumulative potential

log Pow 1-3 = Not worth-mentioning accumulating in organisms.

CAS: 6283-63-2 N,N-Diethyl-p-phenylenediamine sulfate (1:1)

log Pow 2.24 (.) (calculated)

· Mobility in soil No further relevant information available.

· Other adverse effects

Harmful effect due to pH shift.

Forms corrosive mixtures with water even if diluted.

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Avoid transfer into the environment.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

<ul style="list-style-type: none"> · UN-Number · DOT, IMDG, IATA 	<p style="margin: 0;">UN2796</p>
<ul style="list-style-type: none"> · UN proper shipping name · DOT · IMDG, IATA 	<p style="margin: 0;">Sulfuric acid mixture SULPHURIC ACID mixture</p>
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT 	<div style="text-align: center;">  <p style="margin: 0;">CORROSIVE 8</p> </div>
<ul style="list-style-type: none"> · Class · Label 	<p style="margin: 0;">8 Corrosive substances 8</p>
<ul style="list-style-type: none"> · IMDG, IATA 	<div style="text-align: center;">  <p style="margin: 0;">CORROSIVE 8</p> </div>
<ul style="list-style-type: none"> · Class · Label 	<p style="margin: 0;">8 Corrosive substances 8</p>
<ul style="list-style-type: none"> · Packing group · DOT, IMDG, IATA 	<p style="margin: 0;">II</p>
<ul style="list-style-type: none"> · Environmental hazards: · Marine pollutant: 	<p style="margin: 0;">No</p>
<ul style="list-style-type: none"> · Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Segregation groups · Stowage Category 	<p style="margin: 0;">Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids B</p>
<ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code 	<p style="margin: 0;">Not applicable.</p>
<ul style="list-style-type: none"> · Transport/Additional information: · DOT · Quantity limitations 	<p style="margin: 0;">On passenger aircraft/rail: 1 L On cargo aircraft only: 30 L</p>
<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) 	<p style="margin: 0;">1L</p>

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· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
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15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (Extremely hazardous substances):	
CAS: 7664-93-9	sulphuric acid

· Section 313 (Specific toxic chemical listings):	
CAS: 7664-93-9	sulphuric acid

· TSCA (Toxic Substances Control Act):	
CAS No. 6283-63-2 is listed under CAS No. 6065-27-6	
All remaining ingredients are listed.	
All components have the value ACTIVE.	

· Hazardous Air Pollutants	
None of the ingredients is listed.	

· Proposition 65		
· Chemicals known to cause cancer:		
None of the ingredients is listed.		
· Chemicals known to cause reproductive toxicity for females:		
None of the ingredients is listed.		
· Chemicals known to cause reproductive toxicity for males:		
None of the ingredients is listed.		
· Chemicals known to cause developmental toxicity:		
None of the ingredients is listed.		
· New Jersey Right-to-Know List:		
CAS: 7664-93-9	sulphuric acid	
· New Jersey Special Hazardous Substance List:		
CAS: 7664-93-9	sulphuric acid	CA, CO, R2
· Pennsylvania Right-to-Know List:		
CAS: 7664-93-9	sulphuric acid	
· Pennsylvania Special Hazardous Substance List:		
CAS: 7664-93-9	sulphuric acid	E
· EPA (Environmental Protection Agency)		
None of the ingredients is listed.		
· NIOSH-Ca (National Institute for Occupational Safety and Health)		
None of the ingredients is listed.		
· Information about limitation of use: Not required.		
· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.		

*16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Relevant phrases

- H290 May be corrosive to metals.

- H302 Harmful if swallowed.

- H312 Harmful in contact with skin.

- H314 Causes severe skin burns and eye damage.

- H315 Causes skin irritation.

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H319 Causes serious eye irritation.
 H335 May cause respiratory irritation.

· **Version number / date of revision:** 60 / 02/01/2024

· **Abbreviations and acronyms:**

ICAO: International Civil Aviation Organisation
 EC50: effective concentration, 50 percent (in vivo)
 OECD: Organisation for Economic Co-operation and Development
 STOT: specific target organ toxicity
 SE: single exposure
 RE: repeated exposure
 EC50: half maximal effective concentration
 IC50: half maximal inhibitory concentration
 NOEL or NOEC: No Observed Effect Level or Concentration
 ACGIH[®] - American Conference of Governmental Industrial Hygienists
 •A1 - Confirmed human carcinogen
 •A2 - Suspected human carcinogen
 •A3 - Confirmed animal carcinogen with unknown relevance to humans
 •A4 - Not classifiable as a human carcinogen
 •A5 - Not suspected as a human carcinogen
 IARC - International Agency for Research on Cancer
 •Group 1 - Carcinogenic to humans
 •Group 2A - Probably carcinogenic to humans
 •Group 2B - Possibly carcinogenic to humans
 •Group 3 - Not classifiable as to carcinogenicity to humans
 •Group 4 - Probably not carcinogenic to humans
 NTP - National Toxicology Program, U.S. Department of Health and Human Services
 •Group K - Known to be Human Carcinogens
 •Group R - Reasonably Anticipated to be Human Carcinogens
 IMDG: International Maritime Code for Dangerous Goods
 DOT: US Department of Transportation
 IATA: International Air Transport Association
 EINECS: European Inventory of Existing Commercial Chemical Substances
 ELINCS: European List of Notified Chemical Substances
 CAS: Chemical Abstracts Service (division of the American Chemical Society)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 NIOSH: National Institute for Occupational Safety
 OSHA: Occupational Safety & Health
 TLV: Threshold Limit Value
 PEL: Permissible Exposure Limit
 REL: Recommended Exposure Limit
 Corrosive to Metals 1: Corrosive to metals – Category 1
 Acute Toxicity - Oral 4: Acute toxicity – Category 4
 Skin Corrosion 1A: Skin corrosion/irritation – Category 1A
 Skin Irritation 2: Skin corrosion/irritation – Category 2
 Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A
 Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

· **Sources**

Data arise from safety data sheets, reference works and literature.
 IUCLID (International Uniform Chemical Information Database)
 GESTIS- Stoffdatenbank (Substance Database, Germany)

· *** Data compared to the previous version altered.**