

**Material Safety Data Sheet**  
acc. to OSHA HCS

Printing date 10/22/2013

Reviewed on 10/21/2013

**1 Identification**

- **Product identifier**
- **Trade name:** Substrate
- **Catalog or product number:** R5
- **Application of the substance / the mixture** *In-vitro laboratory reagent or component*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
*Bio-Rad Laboratories, Diagnostic Group  
4000 Alfred Nobel Drive  
Hercules, California 94547* 1(510)724-7000
- **Information department:**  
*Technical services, customer support  
TechsupportUSSD@bio-rad.com*
- **Emergency telephone number:**  
*1(800) 424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION, or ACCIDENT.*

**2 Composition/information on ingredients**

- **Chemical characterization: Mixtures**
- **Description:** *Mixture of the substances listed below with non-hazardous additions.*

· **Listing of dangerous and non-hazardous components:**

111-42-2	2,2'-iminodiethanol	Xn R22-48/22 Xi R38-41	2.5-5%
30007-47-7	5-Bromo-5-nitro-1,3-dioxane	Xn R21/22 Xi R36/38	0.1-1.0%
7647-01-0	hydrochloric acid	C R34 Xi R37	0.1-1.0%

- **Additional information** *For the wording of the listed risk phrases refer to section 15.*

**3 Hazard(s) identification**

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**  
*Irritant to eyes.  
Xi; Irritant  
R36: Irritating to eyes.*
- **Information concerning particular hazards for human and environment:**  
*The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.*
- **Classification system:**  
*The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.  
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.*

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- **Label elements**

- **Labelling according to EU guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials

- **Code letter and hazard designation of product:**



Xi Irritant

- **Risk phrases:**

36 Irritating to eyes.

- **Safety phrases:**

25 Avoid contact with eyes.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

#### 4 First-aid measures

- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After eye contact** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing** Rinse mouth with water. Seek medical attention and appropriate follow-up.

#### 5 Fire-fighting measures

- **Suitable extinguishing agents**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** Wear self-contained respiratory protective device.

#### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **Environmental precautions:**  
Do not allow to penetrate the ground/soil.  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Reference to other sections**  
See Section 7 for information on safe handling  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

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**7 Handling and storage**

- **Handling**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Refer to package insert for additional information regarding storage conditions.  
Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

**8 Exposure controls/personal protection**

- **Additional information about design of technical systems:** No further data; see item 7.

· **Components with limit values that require monitoring at the workplace:**

**7647-01-0 hydrochloric acid (0.21%)**

PEL (United States)	Short-term value: C 7 mg/m <sup>3</sup> , C 5 ppm
REL (United States)	Short-term value: C 7 mg/m <sup>3</sup> , C 5 ppm
TLV (United States)	Short-term value: C 2.98 mg/m <sup>3</sup> , C 2 ppm

**111-42-2 2,2'-iminodiethanol (5%)**

REL (United States)	15 mg/m <sup>3</sup> , 3 ppm
TLV (United States)	1* mg/m <sup>3</sup> , 0.2* ppm
Skin; *inhalable fraction and vapor	

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes.  
Avoid contact with the eyes and skin.
- **Breathing equipment:** Use suitable respiratory protective device in case of insufficient ventilation.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**  
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  
Tightly sealed goggles.
- **Body protection:** Protective work clothing.

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**9 Physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Liquid  
Color: Light yellow  
Odor: Odorless  
Odour threshold: Not determined.

· **pH-value at 20 °C:** 8.5

· **Change in condition**

Melting point/Melting range: undetermined  
Boiling point/Boiling range: > 34 °C

· **Flash point:** Not applicable

· **Flammability (solid, gaseous)** Not applicable.

· **Ignition temperature:** 370 °C

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

Lower: Not determined.  
Upper: Not determined.

· **Vapor pressure at 20 °C:** 23 hPa

· **Density:** Not determined

· **Relative density** Not determined.

· **Vapour density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

Water: Fully miscible

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

dynamic: Not determined.  
kinematic: Not determined.

· **Solvent content:**

Organic solvents: 5.0 %  
Water: 94.6 %

· **Other information** No further relevant information available.

**10 Stability and reactivity**

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **Incompatible materials:** No further relevant information available.

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· **Hazardous decomposition products:** No dangerous decomposition products known

**11 Toxicological information**

· **Acute toxicity:**

· **LD/LC50 values for hazardous components per OSHA criteria:**

**111-42-2 2,2'-iminodiethanol**

Oral	LD50	1600 mg/kg (rat)
Dermal	LD50	12200 mg/kg (rbt)

· **Primary irritant effect:**

· **on the skin:** Irritant to skin and mucous membranes.

· **on the eye:**

Strong caustic effect.

Irritant effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

Irritant

· **Carcinogenic categories**

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

111-42-2	2,2'-iminodiethanol	3
7647-01-0	hydrochloric acid	3

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **Target organs:** Eye.

**12 Ecological information**

· **Aquatic toxicity:** No further relevant information available.

· **Persistence and degradability** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential** No further relevant information available.

· **Additional ecological information:**

· **General notes:**

Water hazard class 2 (Self-assessment): hazardous for water.

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

**13 Disposal considerations**

· **Waste treatment methods**

· **Recommendation**

Dispose of waste in accordance to applicable national, regional, or local regulations.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

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- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**

- **UN-Number**
- **DOT, ADR, ADN, IMDG, IATA** Void
- **UN proper shipping name**
- **DOT, ADR, ADN, IMDG, IATA** Void
- **Transport hazard class(es)**
- **ADR, ADN, IMDG, IATA**
- **Class** Void
- **Packing group**
- **DOT, ADR, IMDG, IATA** Void
- **Environmental hazards:**
- **Marine pollutant:** No
- **Special precautions for user** Not applicable.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
- **Transport/Additional information:** Not dangerous according to the above specifications.

**15 Regulatory information**

- **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

- **Section 302/304 (40CFR355.30 / 40CFR355.40):**

7647-01-0 hydrochloric acid

- **Section 313 (40CFR372.65):**

111-42-2 2,2'-iminodiethanol

7647-01-0 hydrochloric acid

- **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

- **Carcinogenic categories**

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

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- **National regulations**
- **Technical instructions (air):**

Class	Share in %
NK	2.5-5

- **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

**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.*

- **Department issuing MSDS:** Environmental Health and Safety.

· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

- \* **Data compared to the previous version altered.**