



08/01/2011

Kit Components

Product code	Description
1706877	Monosaccharide Labeling Reagents Kit

Components:

4306659	Mono Labeling Dye (B2)
4306660	Mono Labeling Diluent (B3)
4306201	NL Labeling Reducing Agent
4306202	NL Labeling solvent
4306676	Acetic anhydride (M3)
4306678	Re-N-acetylation Reagent (M6)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011


1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** Mono Labeling Dye (B2)
- **Catalog or product number:** 4306659
- **CAS Number:**
27918-14-5
- **Application of the substance / the preparation** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000
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: Substances**
- **CAS No. Description:**
27918-14-5 2-amino-10-oxo-9,10-dihydroacridine
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Irritant to eyes.
Irritant to skin.
Irritant to respiratory system.
Irritant to respiratory system and skin.
 Xi; Irritant
R36/37/38: Irritating to eyes, respiratory system and skin.
- **Classification system:**
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **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:**
36/37/38 Irritating to eyes, respiratory system and skin.

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Trade name: Mono Labeling Dye (B2)

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· **Safety phrases:**

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

27 Take off immediately all contaminated clothing.

35 This material and its container must be disposed of in a safe way.

· **Emergency overview:**· **Routes of exposure:**

Inhalation

Skin

4 First aid measures

- **General information** Immediately remove any clothing soiled by the product.
- **After inhalation** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing** Induce vomiting and call for medical help.

5 Firefighting measures

- **Suitable extinguishing agents**
CO₂, 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 equipment (See section 8). Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **Precautions for safe handling**
No special measures required.
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:** Keep receptacle tightly sealed.

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Trade name: Mono Labeling Dye (B2)

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· **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:** Not required.
- **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 and skin.
- **Breathing equipment:**
 In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **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.

9 Physical and chemical properties

- **General Information**
- **Appearance:**

Form:	Solid.
Color:	Yellow
Odor:	sulphurous
- **Change in condition**

Melting point/Melting range:	300°C
Boiling point/Boiling range:	undetermined
- **Flash point:** Not applicable
- **Flammability (solid, gaseous)** Product is not flammable.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Density:** Not determined
- **Solubility in / Miscibility with**

Water:	Insoluble
Organic solvents:	0.0 %
- **Solids content:** 100.0 %
- **Other information** No further relevant information available.

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Trade name: Mono Labeling Dye (B2)

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10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritant effect.
- **Sensitization:** No sensitizing effects known.
- **Target organs:**
Skin.
Eye.

12 Ecological information

- **Acquatic 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**
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.

14 Transport information

- | | |
|------------------------------------|------|
| · UN-Number | |
| · DOT, ADR, ADN, IMDG, IATA | Void |
| · UN proper shipping name | |
| · DOT, ADR, ADN, IMDG, IATA | Void |

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Trade name: Mono Labeling Dye (B2)

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- **Transport hazard class(es)**
- **DOT, 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.

15 Regulatory information

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

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

Substance not listed.

· **Section 313 (40CFR372.65):**

Substance is not listed.

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

Substance is not listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

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

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

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

Substance is not listed.

· **Markings 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

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Trade name: Mono Labeling Dye (B2)

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· Risk phrases:*36/37/38 Irritating to eyes, respiratory system and skin.***· Safety phrases:***26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.**27 Take off immediately all contaminated clothing.**35 This material and its container must be disposed of in a safe way.***· National regulations****· 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.**

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010


1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** Mono Labeling Diluent (B3)
- **Catalog or product number:** 4306660
- **CAS Number:**
64-19-7
- **EC number:**
200-580-7
- **Index number:**
607-002-00-6
- **Application of the substance / the preparation** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

2 Composition/information on ingredients

- **Chemical characterization:** Substances
- **CAS No. Description:**
64-19-7 acetic acid, glacial
- **Identification number(s):**
- **EC number:** 200-580-7
- **Index number:** 607-002-00-6
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Corrosive.
Flammable.
May cause irreversible eye damage.
-  C; Corrosive
- **R35:** Causes severe burns.
- **R10:** Flammable.
- **Classification system:**
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **Label elements**
- **Labelling according to EU guidelines:**
The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials

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Trade name: Mono Labeling Diluent (B3)

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

C Corrosive

· **Risk phrases:**

10 Flammable.

35 Causes severe burns.

· **Safety phrases:**

23 Do not breathe gas/fumes/vapour/spray.

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

45 In case of accident or if you feel unwell, seek medical advice immediately.

4 First aid measures· **General information** Immediately remove any clothing soiled by the product.· **After inhalation** In case of unconsciousness place patient stably in side position for transportation.· **After skin contact** Immediately wash with water and soap and rinse thoroughly.· **After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.· **After swallowing** Drink copious amounts of water and provide fresh air. Immediately call a doctor.**5 Firefighting measures**· **Suitable extinguishing agents**CO₂, 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:** No special measures required.**6 Accidental release measures**· **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment (See section 8). Keep unprotected persons away.

· **Environmental precautions:**

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).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· **Reference to other sections**

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage· **Handling**· **Precautions for safe handling**

No special measures required.

Ensure good ventilation/exhaustion at the workplace.

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Trade name: Mono Labeling Diluent (B3)

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Prevent formation of aerosols.

No special precautions are necessary if used correctly.

Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

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: 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:

64-19-7 acetic acid, glacial

PEL 25 mg/m³, 10 ppm

REL Short-term value: 37 mg/m³, 15 ppm

Long-term value: 25 mg/m³, 10 ppm

TLV Short-term value: 37 mg/m³, 15 ppm

Long-term value: 25 mg/m³, 10 ppm

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 and skin.

Breathing equipment: Not required.

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.

9 Physical and chemical properties

General Information

Appearance:

Form: liquid

Color: Colorless

Odor: Pungent

pH-value at 20°C: 2.5

Change in condition

Melting point/Melting range: 16.6°C

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Material Safety Data Sheet

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Trade name: Mono Labeling Diluent (B3)

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Boiling point/Boiling range: 118°C	
· Flash point:	21 - 55°C
· Ignition temperature:	485°C
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	4 Vol %
Upper:	17 Vol %
· Vapor pressure at 20°C:	16 hPa
· Density at 20°C:	1.05 g/cm ³
· Solubility in / Miscibility with	
Water:	Fully miscible
Organic solvents:	100.0 %
· 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.
- **Hazardous decomposition products:** No dangerous decomposition products known

11 Toxicological information

· **Acute toxicity:**

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

64-19-7 acetic acid, glacial

Oral	LD50	3310 mg/kg (rat)
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· **Primary irritant effect:**

· **on the skin:** Strong caustic effect on skin and mucous membranes.

· **on the eye:** Strong caustic effect.

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

· **Additional toxicological information:**

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· **Target organs:** Skin.

12 Ecological information

· **Acquatic 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 1 (German Regulation) (Assessment by list): slightly hazardous for water.

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Material Safety Data Sheet

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Reviewed on 09/09/2010

Trade name: Mono Labeling Diluent (B3)

(Contd. of page 4)

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.

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

- **UN-Number**
- **DOT** UN2789
- **ADR, IMDG, IATA** 2789
- **UN proper shipping name**
- **DOT, IMDG, IATA** ACETIC ACID, GLACIAL
- **ADR** 2789 ACETIC ACID, GLACIAL
Acetic acid, glacial
- **Transport hazard class(es)**
- **DOT, IMDG, IATA**
- **Class** 8 Corrosive substances.
- **Label** 8+3
- **ADR**
- **Class** 8 Corrosive substances
- **Label** 8
- **Packing group**
- **DOT, ADR, IMDG, IATA** II
- **Environmental hazards:**
- **Marine pollutant:** No
- **Special precautions for user** Warning: Corrosive substances
- **Danger code (Kemler):** 80
- **EMS Number:** F-E,S-C
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

USA

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Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Mono Labeling Diluent (B3)

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15 Regulatory information

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

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

Substance not listed.

· **Section 313 (40CFR372.65):**

Substance is not listed.

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

Substance is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

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

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

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

Substance is not listed.

· **Markings 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:**

C Corrosive

· **Risk phrases:**

10 Flammable.

35 Causes severe burns.

· **Safety phrases:**

23 Do not breathe gas/fumes/vapour/spray.

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

45 In case of accident or if you feel unwell, seek medical advice immediately.

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
II	100.0

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Trade name: Mono Labeling Diluent (B3)

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- **Water hazard class:** Water hazard class 1 (Assessment by list): slightly 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.**

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010


1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** NL Labeling Reducing Agent
- **Catalog or product number:** 4306201
- **CAS Number:**
25895-60-7
- **EC number:**
247-317-2
- **Application of the substance / the preparation** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

2 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description:**
25895-60-7 sodium cyanotrihydroborate
- **Identification number(s):**
- **EC number:** 247-317-2
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Flammable.
-  **F; Highly flammable**
- **R11:** Highly flammable.
- **R32:** Contact with acids liberates very toxic gas.
- **Classification system:**
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **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:**
F Highly flammable
- **Risk phrases:**
11 Highly flammable.

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Trade name: NL Labeling Reducing Agent

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32 Contact with acids liberates very toxic gas.

· **Safety phrases:**

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

60 This material and its container must be disposed of as hazardous waste.

4 First aid measures

- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing** Induce vomiting and call for medical help.

5 Firefighting measures

- **Suitable extinguishing agents**
CO₂, 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:** Mount respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment (See section 8). Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** Ensure adequate ventilation.
- **Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **Precautions for safe handling**
No special measures required.
No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Do not store together with acids.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

USA

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Reviewed on 09/09/2010

Trade name: NL Labeling Reducing Agent

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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:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures** Wash hands before breaks and at the end of work.
- **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.

9 Physical and chemical properties

- **General Information**
- **Appearance:**
 - Form:** Crystalline powder
 - Color:** White
 - Odor:** Odorless
- **Change in condition**
 - Melting point/Melting range:** >242°C
 - Boiling point/Boiling range:** undetermined
- **Flash point:** Not applicable
- **Flammability (solid, gaseous)** Highly flammable.
Contact with water liberates extremely flammable gases.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Density:** Not determined
- **Solubility in / Miscibility with**
 - Water:** Fully miscible
 - Organic solvents:** 0.0 %
- **Solids content:** 100.0 %
- **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.
- **Hazardous decomposition products:** No dangerous decomposition products known

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Trade name: NL Labeling Reducing Agent

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11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritant effect.
- **Sensitization:** No sensitizing effects known.

12 Ecological information

- **Acquatic 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**
 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

· UN-Number	
· DOT	UN3179
· ADR, IMDG, IATA	3179
· UN proper shipping name	
· DOT, IMDG, IATA	FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S. (sodium cyanotrihydroborate)
· ADR	3179 FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S. (sodium cyanotrihydroborate)
· Transport hazard class(es)	
· DOT, IMDG, IATA	
· Class	4.1 Flammable solids, self-reactive substances and solid desensitised explosives.

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Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: NL Labeling Reducing Agent

(Contd. of page 4)

· ADR	
· Class	4.1 Flammable solids, self-reactive substances and solid desensitised explosives
· Label	4.1+6.1
· Packing group	
· DOT, ADR, IMDG, IATA	II
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Warning: Flammable solids, self-reactive substances and solid desensitised explosives
· Danger code (Kemler):	46
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.

15 Regulatory information

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

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

Substance not listed.

· **Section 313 (40CFR372.65):**

Substance is not listed.

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

Substance is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

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

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

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

Substance is not listed.

· **Markings according to EU guidelines:**

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

(Contd. on page 6)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: NL Labeling Reducing Agent

(Contd. of page 5)

· **Code letter and hazard designation of product:***F Highly flammable*· **Risk phrases:***11 Highly flammable.**32 Contact with acids liberates very toxic gas.*· **Safety phrases:***26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.**60 This material and its container must be disposed of as hazardous waste.*· **National regulations**· **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.**

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** NL Labeling solvent
- **Catalog or product number:** 4306202
- **CAS Number:**
67-68-5
- **EC number:**
200-664-3
- **Application of the substance / the preparation** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547
(510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

2 Composition/information on ingredients

- **Chemical characterization:** Substances
- **CAS No. Description:**
67-68-5 dimethyl sulfoxide
- **Identification number(s):**
- **EC number:** 200-664-3
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
- **Classification system:**
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **Label elements**
- **Labelling according to EU guidelines:**
Observe the general safety regulations when handling chemicals
The substance is not subject to classification according to EU lists and other sources of literature known to us.
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).
- **Safety phrases:**
24/25 Avoid contact with skin and eyes.
35 This material and its container must be disposed of in a safe way.

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

Trade name: NL Labeling solvent

(Contd. of page 1)

4 First aid measures

- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Induce vomiting and call for medical help.

5 Firefighting measures

- **Suitable extinguishing agents**
CO₂, 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:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment (See section 8). Keep unprotected persons away.
- **Environmental precautions:**
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).
Dispose contaminated material as waste according to item 13.
- **Reference to other sections** No dangerous substances are released.

7 Handling and storage

- **Handling**
- **Precautions for safe handling**
No special measures required.
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:** None.
- **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:**

67-68-5 dimethyl sulfoxide

WEEL 250 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.

(Contd. on page 3)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

Trade name: NL Labeling solvent

(Contd. of page 2)

- **Personal protective equipment**
- **General protective and hygienic measures** *The usual precautionary measures for handling chemicals should be followed.*
- **Breathing equipment:** *Not required.*
- **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*

9 Physical and chemical properties

· **General Information**

· **Appearance:**

Form: liquid
Color: Colorless
Odor: Odorless

· **Change in condition**

Melting point/Melting range: 18.45°C
Boiling point/Boiling range: 189°C

· **Flash point:** > 55°C

· **Ignition temperature:** 270°C

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

· **Explosion limits:**

Lower: 1.8 Vol %
Upper: 63 Vol %

· **Vapor pressure at 20°C:** 2.5 hPa

· **Density at 20°C:** 1.1 g/cm³

· **Solubility in / Miscibility with**

Water: Fully miscible
Organic solvents: 100.0 %

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

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

Trade name: NL Labeling solvent

(Contd. of page 3)

11 Toxicological information

· **Acute toxicity:**

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

67-68-5 dimethyl sulfoxide

Oral	LD50	14500 mg/kg (rat)
------	------	-------------------

· **Primary irritant effect:**

· **on the skin:** No irritant effect.

· **on the eye:** No irritant effect.

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

· **Additional toxicological information:**

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

The substance is not subject to classification according to the latest version of the EU lists.

· **Target organs:** Not applicable.

12 Ecological information

· **Acquatic 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 1 (German Regulation) (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13 Disposal considerations

· **Waste treatment methods**

· **Recommendation** 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

· **UN-Number**

· **DOT, ADR, ADN, IMDG, IATA**

Void

· **UN proper shipping name**

· **DOT, ADR, ADN, IMDG, IATA**

Void

· **Transport hazard class(es)**

· **DOT, ADR, ADN, IMDG, IATA**

· **Class**

Void

(Contd. on page 5)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

Trade name: NL Labeling solvent

(Contd. of page 4)

· 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):**

Substance not listed.

· **Section 313 (40CFR372.65):**

Substance is not listed.

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

Substance is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

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

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

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

Substance is not listed.

· **Markings according to EU guidelines:**

Observe the general safety regulations when handling chemicals

The substance is not subject to classification according to EU lists and other sources of literature known to us.

The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).

· **Safety phrases:**

24/25 Avoid contact with skin and eyes.

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Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

Trade name: NL Labeling solvent

(Contd. of page 5)

35 This material and its container must be disposed of in a safe way.

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
NK	50-100

· **Water hazard class:** Water hazard class 1 (Self-assessment): slightly 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.**

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010



1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** Acetic anhydride (M3)
- **Catalog or product number:** 4306676
- **CAS Number:**
108-24-7
- **EC number:**
203-564-8
- **Index number:**
607-008-00-9
- **Application of the substance / the preparation** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

2 Composition/information on ingredients

- **Chemical characterization:** Substances
- **CAS No. Description:**
108-24-7 acetic anhydride
- **Identification number(s):**
- **EC number:** 203-564-8
- **Index number:** 607-008-00-9
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Corrosive.
Flammable.
May cause irreversible eye damage.
-  C; Corrosive
- R34: Causes burns.
-  Xn; Harmful
- R20/22: Harmful by inhalation and if swallowed.
- R10: Flammable.
- **Classification system:**
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.

(Contd. on page 2)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Acetic anhydride (M3)

(Contd. of page 1)

· **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:**

C Corrosive

· **Risk phrases:**

- 10 Flammable.
- 20/22 Harmful by inhalation and if swallowed.
- 34 Causes burns.

· **Safety phrases:**

- 1/2 Keep locked up and out of the reach of children.
- 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.
- 45 In case of accident or if you feel unwell, seek medical advice immediately.
- 60 This material and its container must be disposed of as hazardous waste.

· **Emergency overview:**· **Routes of exposure:**

- Ingestion
- Inhalation

* **4 First aid measures**· **General information**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact** Immediately wash with water and soap and rinse thoroughly.· **After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.· **After swallowing**

Immediately call a doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

* **5 Firefighting measures**· **Suitable extinguishing agents**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **For safety reasons unsuitable extinguishing agents** Water with full jet.· **Special hazards arising from the substance or mixture** No further relevant information available.· **Protective equipment:** Mount respiratory protective device.* **6 Accidental release measures**· **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment (See section 8). Keep unprotected persons away.

(Contd. on page 3)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Acetic anhydride (M3)

(Contd. of page 2)

- **Environmental precautions:** 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).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **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:** 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:**

108-24-7 acetic anhydride

PEL	20 mg/m ³ , 5 ppm
REL	Short-term value: C 20 mg/m ³ , C 5 ppm
TLV	21 mg/m ³ , 5 ppm

- **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 and skin.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **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

(Contd. on page 4)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Acetic anhydride (M3)

Tightly sealed goggles.

(Contd. of page 3)

9 Physical and chemical properties

· General Information

· Appearance:

Form: liquid
Color: Colorless
Odor: Pungent

· Change in condition

Melting point/Melting range: -73.1°C
Boiling point/Boiling range: 139°C

· Flash point: 21 - 55°C

· Ignition temperature: 330°C

· Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· Explosion limits:

Lower: 2 Vol %
Upper: 10.2 Vol %

· Vapor pressure at 20°C: 4.9 hPa

· Density at 20°C: 1.082 g/cm³

· Solubility in / Miscibility with

Water at 20°C: 136 g/l
Organic solvents: 100.0 %

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

11 Toxicological information

· Acute toxicity:

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

108-24-7 acetic anhydride

Oral	LD50	1780 mg/kg (rat)
Dermal	LD50	4000 mg/kg (rbt)
Inhalative	LC50/4 h	1000 mg/l (rat)

· Primary irritant effect:

- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.

(Contd. on page 5)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Acetic anhydride (M3)

(Contd. of page 4)

Additional toxicological information:

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

Target organs:

Skin.
Respiratory tract.

12 Ecological information

Acquatic 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 1 (German Regulation) (Assessment by list): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

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.

14 Transport information

UN-Number

DOT

ADR, IMDG, IATA

UN1715

1715

UN proper shipping name

DOT, IMDG, IATA

ADR

ACETIC ANHYDRIDE

1715 ACETIC ANHYDRIDE

Transport hazard class(es)

DOT, IMDG, IATA

Class

Label

8 Corrosive substances.

8+3

ADR

Class

Label

8 Corrosive substances

8+3

Packing group

DOT, ADR, IMDG, IATA

II

(Contd. on page 6)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Acetic anhydride (M3)

(Contd. of page 5)

- **Environmental hazards:**
- **Marine pollutant:** No
- **Special precautions for user:** Warning: Corrosive substances
- **Danger code (Kemler):** 83
- **EMS Number:** F-E,S-C
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.
- **Transport/Additional information:**
- **DOT**
- **Remarks:**

15 Regulatory information

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

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

Substance not listed.

· **Section 313 (40CFR372.65):**

Substance is not listed.

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

Substance is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

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

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

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

Substance is not listed.

· **Markings 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:**

C Corrosive

(Contd. on page 7)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Acetic anhydride (M3)

(Contd. of page 6)

· **Risk phrases:**

- 10 Flammable.
- 20/22 Harmful by inhalation and if swallowed.
- 34 Causes burns.

· **Safety phrases:**

- 1/2 Keep locked up and out of the reach of children.
- 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.
- 45 In case of accident or if you feel unwell, seek medical advice immediately.
- 60 This material and its container must be disposed of as hazardous waste.

· **National regulations**

- **Water hazard class:** Water hazard class 1 (Assessment by list): slightly 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.**

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** *Re-N-acetylation Reagent (M6)*
- **Catalog or product number:** 4306678
- **Application of the substance / the preparation** *Laboratory chemicals*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
*Bio-Rad Laboratories, Life Science Group
 2000 Alfred Nobel Drive
 Hercules, California 94547* (510)741-1000
- **Information department:** *Technical services, customer support.*
- **Emergency telephone number:**
*1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
 510-741-1000*

2 Composition/information on ingredients

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

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

7732-18-5	water	50-100%
10361-29-2	ammonium carbonate	5-10%

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

3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** *Void*
- **Information concerning particular hazards for human and environment:**
The product does not have 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.*
- **Label elements**
- **Labelling according to EU guidelines:**
*Observe the general safety regulations when handling chemicals
 The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).*
- **Safety phrases:**
60 This material and its container must be disposed of as hazardous waste.

4 First aid measures

- **General information** *No special measures required.*

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- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Induce vomiting and call for medical help.

5 Firefighting measures

- **Suitable extinguishing agents**
CO₂, 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:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment (See section 8). Keep unprotected persons away.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Reference to other sections** No dangerous substances are released.

7 Handling and storage

- **Handling**
- **Precautions for safe handling**
No special measures required.
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:** None.
- **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:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.

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USA

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Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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

9 Physical and chemical properties

General Information

Appearance:

Form: liquid
Color: Colorless
Odor: Odorless

Change in condition

Melting point/Melting range: undetermined
Boiling point/Boiling range: 100°C

Flash point: Not applicable

Auto igniting: Product is not selfigniting.

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

Vapor pressure at 20°C: 23 hPa

Density at 20°C: 0.989 g/cm³

Solubility in / Miscibility with

Water: Fully miscible

Solvent content:

Organic solvents: 0.0 %
Water: 90.0 %

Solids content: 10.0 %

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.

Hazardous decomposition products: No dangerous decomposition products known

11 Toxicological information

Acute toxicity:

Primary irritant effect:

on the skin: No irritant effect.

on the eye: No irritant effect.

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- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
*The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
 When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.*
- **Target organs:** Not applicable.

12 Ecological information

- **Acquatic 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:** Generally not hazardous for water.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation** Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

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)	
· DOT, 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.

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15 Regulatory information· **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**· **Section 302/304 (40CFR355.30 / 40CFR355.40):**

None of the ingredients is listed.

· **Section 313 (40CFR372.65):**

None of the ingredients is listed.

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

All ingredients are listed.

· **Carcinogenic categories**· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

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

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **MAK (German Maximum Workplace Concentration)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

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

None of the ingredients is listed.

· **Markings according to EU guidelines:**

Observe the general safety regulations when handling chemicals

The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).

· **Safety phrases:**

60 This material and its container must be disposed of as hazardous waste.

· **National regulations**· **Water hazard class:** Generally not 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.**