

# Safety Data Sheet

acc. to OSHA HCS




Printing date 11/16/2018

Reviewed on 11/16/2018

## 1 Identification

- **Product identifier**
- **Trade name: AP Color Reagent A**
- **Catalog or product number:** 9701067
- **Application of the substance / the mixture** 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:** lsg\_techserv\_us@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.  
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 Hazard(s) identification

- **Classification of the substance or mixture**  
Flam. Liq. 3 H226 Flammable liquid and vapor.  
Eye Irrit. 2A H319 Causes serious eye irritation.  
Carc. 1B H350 May cause cancer.  
Repr. 1A H360 May damage fertility or the unborn child.
  - **Label elements**
  - **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
  - **Hazard pictograms**
- 


- GHS02 GHS07 GHS08
- **Signal word** Danger
  - **Hazard-determining components of labeling:**  
N,N-dimethylformamide
  - **Hazard statements**  
H226 Flammable liquid and vapor.  
H319 Causes serious eye irritation.  
H350 May cause cancer.  
H360 May damage fertility or the unborn child.
  - **Precautionary statements**  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P241 Use explosion-proof electrical/ventilating/lighting/equipment.  
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P405 Store locked up.

(Contd. on page 2)

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

Printing date 11/16/2018

Reviewed on 11/16/2018

**Trade name: AP Color Reagent A**

(Contd. of page 1)

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Emergency overview:**
- **Routes of exposure:** Inhalation
- **Classification system**
- **Special Hazards**  
Reproductive toxin.  
Carcinogen.
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

**3 Composition/information on ingredients**

- **Chemical characterization: Substances**
- **CAS No. Description:**  
68-12-2 N,N-dimethylformamide
- **Identification number(s):**
- **EC number:** 200-679-5
- **Index number:** 616-001-00-X
- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with non-hazardous additions.

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

|          |  |         |
|----------|--|---------|
| 68-12-2  | N,N-dimethylformamide<br>Flam. Liq. 3, H226<br>Carc. 1B, H350; Repr. 1B, H360<br>Acute Tox. 4, H312; Acute Tox. 4, H332; Eye Irrit. 2A, H319       | 50-100% |
| 298-83-9 | 5,5'-diphenyl-3,3'-bis(4-nitrophenyl)-2,2'-(3,3'-dimethoxybiphenyl-4,4'-ylene)ditetrazolium dichloride<br>Acute Tox. 3, H311<br>Acute Tox. 4, H332 | 2.5-5%  |

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

**4 First-aid measures**

- **Description of first aid measures**
- **General information** Immediately remove any clothing soiled by the product.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact**  
Generally the product does not irritate the skin.  
Immediately rinse with water.
- **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.
- **Information for doctor**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

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

Printing date 11/16/2018

Reviewed on 11/16/2018

Trade name: AP Color Reagent A

(Contd. of page 2)

**5 Fire-fighting measures**

- **Extinguishing media**
- **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.
- **Advice for firefighters**
- **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.  
Wear protective clothing.
- **Environmental precautions:**  
Prevent seepage into sewage system, workpits and cellars.  
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.  
Ensure adequate ventilation.
- **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.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

|                       |       |
|-----------------------|-------|
| N,N-dimethylformamide | 2 ppm |
|-----------------------|-------|

· **PAC-2:**

|                                 |        |
|---------------------------------|--------|
| 68-12-2   N,N-dimethylformamide | 91 ppm |
|---------------------------------|--------|

· **PAC-3:**

|                                 |         |
|---------------------------------|---------|
| 68-12-2   N,N-dimethylformamide | 530 ppm |
|---------------------------------|---------|

**7 Handling and storage**

- **Handling**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.  
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification

(Contd. on page 4)

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

Printing date 11/16/2018

Reviewed on 11/16/2018

**Trade name: AP Color Reagent A**

(Contd. of page 3)

- **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.

· **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. At this time, the remaining constituent has no known exposure limits.

**68-12-2 N,N-dimethylformamide**

|     |  |
|-----|--|
| PEL | Long-term value: 30 mg/m <sup>3</sup> , 10 ppm<br>Skin     |
| REL | Long-term value: 30 mg/m <sup>3</sup> , 10 ppm<br>Skin     |
| TLV | Long-term value: 15 mg/m <sup>3</sup> , 5 ppm<br>Skin; BEI |

· **Ingredients with biological limit values:**

**68-12-2 N,N-dimethylformamide**

|     |   |
|-----|---|
| BEI | 15 mg/L<br>Medium: urine<br>Time: end of shift<br>Parameter: N-Methylformamide  |
|     | 40 mg/L<br>Medium: urine<br>Time: prior to last shift of workweek<br>Parameter: N-Acetyl-S-(N-methylcarbamoyl) cysteine (semi-quantitative) |

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

· **Exposure controls**

· **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.
- Store protective clothing separately.
- Avoid contact with the eyes.
- 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.

(Contd. on page 5)

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

Printing date 11/16/2018

Reviewed on 11/16/2018

Trade name: AP Color Reagent A

(Contd. of page 4)

- **Eye protection:**  
Safety glasses  
Tightly sealed goggles.

**9 Physical and chemical properties**

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

- **Form:** Liquid
- **Color:** Colorless
- **Odor:** Amine-like
- **Odor threshold:** Not determined.

· **pH-value at 20 °C:** 7

· **Change in condition**

- **Melting point/Melting range:** -61 °C
- **Boiling point/Boiling range:** 152.5-153.5 °C

· **Flash point:** 23 - 60 °C

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

· **Ignition temperature:** 440 °C

· **Decomposition temperature:** Not determined.

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

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

· **Explosion limits:**

- **Lower:** 2.2 Vol %
- **Upper:** 16 Vol %

· **Vapor pressure at 20 °C:** 3.5 hPa

· **Density at 20 °C:** 0.95 g/cm<sup>3</sup>

· **Relative density** Not determined.

· **Vapor density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

**Water:** Fully miscible

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

· **Viscosity:**

- **dynamic at 20 °C:** 0.802 mPas
- **kinematic:** Not determined.

· **Solvent content:**

**Solids content:** 3.0 %

(Contd. on page 6)

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

Printing date 11/16/2018

Reviewed on 11/16/2018

Trade name: AP Color Reagent A

(Contd. of page 5)

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

**10 Stability and reactivity**

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

**11 Toxicological information**

- **Information on toxicological effects**
- **Acute toxicity:**

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

**68-12-2 N,N-dimethylformamide**

|            |          |                   |
|------------|----------|-------------------|
| Oral       | LD50     | 7,600 mg/kg (rat) |
| Dermal     | LD50     | 5,000 mg/kg (rbt) |
| Inhalative | LC50/4 h | 9,400 mg/l (mus)  |

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** 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)**

68-12-2 | N,N-dimethylformamide

2A

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

None of the ingredients is listed.

· **Target organs:** Eye.

**12 Ecological information**

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.

(Contd. on page 7)

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

Printing date 11/16/2018

Reviewed on 11/16/2018

Trade name: AP Color Reagent A

(Contd. of page 6)

- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** 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.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

**13 Disposal considerations**

- **Waste treatment methods**
- **Recommendation**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.  
Dispose of waste in accordance to applicable national, regional, or local regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**

- |  |                                     |
|--|-------------------------------------|
| · <b>UN-Number</b>   |                                     |
| · <b>DOT, ADR, IMDG, IATA</b>  | UN2265                              |
| · <b>UN proper shipping name</b>   |                                     |
| · <b>DOT, IATA</b>   | N,N-DIMETHYLFORMAMIDE MIXTURE       |
| · <b>ADR</b>   | 2265 N,N-DIMETHYLFORMAMIDE, mixture |
| · <b>IMDG</b>  | N,N-DIMETHYLFORMAMIDE, mixture      |
| · <b>Transport hazard class(es)</b>  |                                     |
| · <b>DOT, ADR, IMDG, IATA</b>  |                                     |
| · <b>Class</b>   | 3 Flammable liquids                 |
| · <b>Label</b>   | 3                                   |
| · <b>Packing group</b>   |                                     |
| · <b>DOT, ADR, IMDG, IATA</b>  | III                                 |
| · <b>Environmental hazards:</b>  |                                     |
| · <b>Marine pollutant:</b>   | No                                  |
| · <b>Special precautions for user</b>  | Warning: Flammable liquids          |
| · <b>Danger code (Kemler):</b>   | 30                                  |
| · <b>EMS Number:</b>   | F-E,S-D                             |
| · <b>Stowage Category</b>  | A                                   |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable.                     |

(Contd. on page 8)



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

Printing date 11/16/2018

Reviewed on 11/16/2018

Trade name: AP Color Reagent A

(Contd. of page 7)

**· Transport/Additional information:**

· DOT

· Quantity limitations

Void  
Void  
ERG 129

· Remarks:

· ADR

· Excepted quantities (EQ)

Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml

· IMDG

· Limited quantities (LQ)

· Excepted quantities (EQ)

5L  
Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation":

UN 2265 N,N-DIMETHYLFORMAMIDE MIXTURE, 3, III

**15 Regulatory information**

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

68-12-2 | N,N-dimethylformamide

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· TSCA new (21st Century Act)

68-12-2 | N,N-dimethylformamide

ACTIVE/EXEMPT

· California Proposition 65:

None of the ingredients is listed.

· Chemicals known to cause cancer:

68-12-2 | N,N-dimethylformamide

\*

· Developmental Toxicity

None of the ingredients is listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

68-12-2 | N,N-dimethylformamide

A4

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

None of the ingredients is listed.

(Contd. on page 9)



## Safety Data Sheet

acc. to OSHA HCS

Printing date 11/16/2018

Reviewed on 11/16/2018

Trade name: AP Color Reagent A

(Contd. of page 8)

- **National regulations**
- **Additional classification according to Decree on Hazardous Materials, Annexe II:**  
Carcinogenic hazardous material group III (dangerous)
- **Information about limitation of use:**  
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.
- **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.
- **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.

- **Department issuing SDS:** 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**
- **Date of preparation / last revision** 11/16/2018 / -
- **Abbreviations and acronyms:**  
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
DOT: US Department of Transportation  
IATA: International Air Transport Association  
ACGIH: American Conference of Governmental Industrial Hygienists  
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  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
NIOSH: National Institute for Occupational Safety  
OSHA: Occupational Safety & Health  
TLV: Threshold Limit Value  
PEL: Permissible Exposure Limit  
REL: Recommended Exposure Limit  
BEI: Biological Exposure Limit  
Flam. Liq. 3: Flammable liquids – Category 3  
Acute Tox. 3: Acute toxicity – Category 3  
Acute Tox. 4: Acute toxicity – Category 4  
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A  
Carc. 1B: Carcinogenicity – Category 1B  
Repr. 1A: Reproductive toxicity – Category 1A  
Repr. 1B: Reproductive toxicity – Category 1B
- **\* Data compared to the previous version altered.**