

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

Revision Date: 08/07/2015

Issue Date: 08/05/2015

1 Identification

- **Product identifier**
- **Product name:** Dye Solvent
- **Product Code:** WS0339
- **Application of the substance / the mixture** Research and Development
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
ProZyme, Inc
3832 Bay Center Place
HAYWARD, CA 94545
USA
- **Issuing Department:** ProZyme Quality Assurance Department
- **Email:** info@prozyme.com
- **Fax number:** +1 510 638 6919
- **Phone number:** +1 510 638 6900
- **Emergency telephone number:** +1 760 476 3961

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.



GHS08 Health hazard

Repr. 1B H360 May damage fertility or the unborn child.



GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

- **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

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Hazard statements

- Flammable liquid and vapor.
- Causes serious eye irritation.
- May damage fertility or the unborn child.

Precautionary statements

- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Use explosion-proof electrical/ventilating/lighting/equipment.
- Wear protective gloves / eye protection / face protection.
- Ground/bond container and receiving equipment.
- Keep container tightly closed.
- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Wash thoroughly after handling.
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- IF exposed or concerned: Get medical advice/attention.
- If eye irritation persists: Get medical advice/attention.
- In case of fire: Use for extinction: CO2, powder or water spray.
- Store locked up.
- Store in a well-ventilated place. Keep cool.
- Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

NFPA ratings (scale 0 - 4)



Health = 2
Fire = 2
Reactivity = 0

HMIS-ratings (scale 0 - 4)



HEALTH *2 Health = *2
FIRE 2 Fire = 2
REACTIVITY 0 Reactivity = 0

- Other hazards**
- Results of PBT and vPvB assessment**
- PBT:** Not applicable.
- vPvB:** Not applicable.

3 Composition/information on ingredients

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

Dangerous components:

68-12-2	N,N-dimethylformamide	90.0%
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4 First-aid measures

- **Description of first aid measures**

- **General information:**

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 rinse with water.

- **After eye contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- **After swallowing:** If symptoms persist consult doctor.

- **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.

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:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Wear protective gloves / eye protection / face protection.

- **Environmental precautions:**

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

Inform respective authorities in case of seepage into water course or sewage system.

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.

7 Handling and storage

- **Handling:**

- **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

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- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **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:	
68-12-2 N,N-dimethylformamide	
PEL	Long-term value: 30 mg/m ³ , 10 ppm Skin
REL	Long-term value: 30 mg/m ³ , 10 ppm Skin
TLV	Long-term value: 30 mg/m ³ , 10 ppm Skin; BEI

· Ingredients with biological limit values:	
68-12-2 N,N-dimethylformamide	
BEI	15 mg/L Medium: urine Time: end of shift Parameter: N-Methylformamide
	40 mg/L Medium: urine Time: prior to last shift of workweek 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

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The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves** Wear suitable 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:**



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

- | | |
|---------------------------|-----------------|
| · Form: | Liquid |
| · Color: | Transparent |
| · Odor: | Characteristic |
| · Odour threshold: | Not determined. |

- | | |
|--------------------|-----------------|
| · pH-value: | Not determined. |
|--------------------|-----------------|

· Change in condition

- | | |
|---------------------------------------|-----------------|
| · Melting point/Melting range: | Undetermined. |
| · Boiling point/Boiling range: | 152 °C (306 °F) |

- | | |
|-----------------------|----------------|
| · Flash point: | 58 °C (136 °F) |
|-----------------------|----------------|

- | | |
|---|-----------------|
| · Flammability (solid, gaseous): | Not applicable. |
|---|-----------------|

- | | |
|--------------------------------|-----------------|
| · Ignition temperature: | 440 °C (824 °F) |
|--------------------------------|-----------------|

- | | |
|-------------------------------------|-----------------|
| · Decomposition temperature: | Not determined. |
|-------------------------------------|-----------------|

- | | |
|-------------------------|------------------------------|
| · Auto igniting: | Product is not selfigniting. |
|-------------------------|------------------------------|

- | | |
|-------------------------------|-----------------|
| · Danger of explosion: | Not determined. |
|-------------------------------|-----------------|

· Explosion limits:

- | | |
|-----------------|------------|
| · Lower: | 2.2 Vol % |
| · Upper: | 16.0 Vol % |

- | | |
|---|-------------------|
| · Vapor pressure at 20 °C (68 °F): | 3.5 hPa (3 mm Hg) |
|---|-------------------|

- | | |
|-------------------|-----------------|
| · Density: | Not determined. |
|-------------------|-----------------|

- | | |
|---------------------------|-----------------|
| · Relative density | Not determined. |
|---------------------------|-----------------|

- | | |
|-------------------------|-----------------|
| · Vapour density | Not determined. |
|-------------------------|-----------------|

- | | |
|---------------------------|-----------------|
| · Evaporation rate | Not determined. |
|---------------------------|-----------------|

· Solubility in / Miscibility with

- | | |
|-----------------|-----------------------------------|
| · Water: | Not miscible or difficult to mix. |
|-----------------|-----------------------------------|

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

· Viscosity:

- | | |
|-------------------|-----------------|
| · Dynamic: | Not determined. |
|-------------------|-----------------|

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Kinematic:	Not determined.
Solvent content:	
Organic solvents:	0.0 %
Solids content:	10.0 %
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 that are relevant for classification:		
68-12-2 N,N-dimethylformamide		
Oral	LD50	2800 mg/kg (rat)
Dermal	LD50	4720 mg/kg (rabbit)
Inhalative	LC50/4 h	9400 mg/l (mouse)

- **Primary irritant effect:**
- **on the skin:** May be harmful in contact with skin.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Irritant

· **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)		
68-12-2	N,N-dimethylformamide	3

· NTP (National Toxicology Program)		
None of the ingredients is listed.		

· OSHA-Ca (Occupational Safety & Health Administration)		
None of the ingredients is listed.		

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12 Ecological information

- **Toxicity**
- **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.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (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.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· UN-Number	
· DOT, IMDG, IATA	UN2265
· UN proper shipping name	
· DOT	N,N-Dimethylformamide mixture
· IMDG, IATA	N,N-DIMETHYLFORMAMIDE mixture
· Transport hazard class(es)	
· DOT	
	
· Class	3 Flammable liquids
· Label	3

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· IMDG, IATA	
	
· Class · Label	3 Flammable liquids 3
· Packing group · DOT, IMDG, IATA	III
· Environmental hazards:	Not applicable.
· Special precautions for user · Danger code (Kemler): · EMS Number:	Warning: Flammable liquids 30 F-E,S-D
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT · Quantity limitations	On passenger aircraft/rail: 60 L On cargo aircraft only: 220 L
· 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**

· Section 355 (extremely hazardous substances):
None of the ingredients is listed.
· Section 313 (Specific toxic chemical listings):
68-12-2 N,N-dimethylformamide
· TSCA (Toxic Substances Control Act):
All ingredients are listed.
· Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.

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· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· 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.

· 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

Flammable liquid and vapor.

Causes serious eye irritation.

May damage fertility or the unborn child.

· Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Use explosion-proof electrical/ventilating/lighting/equipment.

Wear protective gloves / eye protection / face protection.

Ground/bond container and receiving equipment.

Keep container tightly closed.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Wash thoroughly after handling.

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO₂, powder or water spray.

Store locked up.

Store in a well-ventilated place. Keep cool.

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

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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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.

· **Trademark** ProZyme is a trademark or registered trademark of ProZyme in the United States and other countries.

· **Abbreviations and acronyms:**

Flam. Liq. 3: Flammable liquids, Hazard Category 3

Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A

Repr. 1B: Reproductive toxicity, Hazard Category 1B

· **Supersedes Date:** -

· **Current Revision:** AA

US