

Safety Data Sheet



Revision Date: 9/29/2014

SDS # SDS-10194-01

Formamide Hybridization Buffer

1. PRODUCT AND COMPANY IDENTIFICATION

Product Description:	Product Code
Formamide Hybridization Buffer	50-86-12
Formamide Hybridization Buffer	50-86-11
Formamide Hybridization Buffer	50-86-10
Formamide Hybridization Buffer	50-86-09

Hazardous Reagent
Formamide Hybridization Buffer

Hazardous Reagent Product code
Catalog No. Listed above

Recommended Use Reagent

Contact Manufacturer KPL, Inc.
910 Clopper Road
Gaithersburg, Maryland 20878
USA

Phone #: 1-301-948-7755
Fax #: 1-301-948-0169
Web: www.kpl.com
Email: kplmsds@seracare.com

Emergency Telephone Numbers:

AUSTRALIA – POISONS INFORMATION CENTER	Telephone: 13 11 26	Hours: 24 hours
CANADIAN TRANSPORT EMERGENCY CENTER	Telephone: (1) 613 996 6666	Hours: 24 hours/day, 7 days/week
UK – THE NATIONAL FOCUS	Telephone: (44) 029 2041 6388	Hours: 09:00-17:00 GMT
USA- NATIONAL RESPONSE CENTER	Telephone: (1) 800 424 8802	Hours: 24 hours/day, 7 days/week

CHEMTREC: CHEMTREC Customer Number:- CCN12505*
For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
Within USA and Canada: 1-800-424-9300 CCN12505 or
+1 703-527-3887 (collect calls accepted)

2. HAZARD IDENTIFICATION

Hazard Type Health Hazard

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Classification Reproductive toxicity, Category 1B; H360D
Acute toxicity, Category 4, oral; H302
Acute toxicity, Category 3, dermal; H311
Skin irritation, Category 2; H315
Eye irritation, Category 2; H319
Specific Target Organ Toxicity (single exposure), Category 3; H335

Hazard Statement H360D: May damage the unborn child.
H302: Harmful if swallowed.
H311: Toxic in contact with skin.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.

Precautionary Statement P201: Obtain special instructions before use.

P308+P313: IF exposed or concerned: Get medical advice/attention.
 P280: Wear protective gloves/protective clothing/eye protection/face protection.
 P302+P352: IF ON SKIN: Wash with plenty of soap and water.
 P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P309+P310: IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

Symbols of Danger

GHS08 Dgr: Danger

**Data for 100% Formamide**

ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation of its vapour, through the skin and by ingestion.

INHALATION RISK: A harmful contamination of the air will not or will only very slowly be reached on evaporation of this substance at 20°C.

SHORT-TERM EXPOSURE: The substance is irritating to the eyes and the skin . The substance may cause effects on the central nervous system .

LONG-TERM EXPOSURE: Animal tests show that this substance possibly causes toxic effects upon human reproduction.

The product is a Mixture. It May Cause the following symptoms.

EYES: Redness.

SKIN: MAY BE ABSORBED! Redness.

INHALATION: Drowsiness. Headache. Nausea. Unconsciousness.

INGESTION: Abdominal pain. (See Inhalation).

3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CHEMICAL</u>	<u>% Weight</u>	<u>CAS #:</u>
Formamide Hybridization Buffer	Formamide	<50%	75-12-7
	Sodium Dodecyl Sulfate	<2%	151-21-3

Classification

Reproductive toxicity, Category 1B;
 H360D
 Acute toxicity, Category 4, oral; H302
 Acute toxicity, Category 3, dermal; H311
 Skin irritation, Category 2; H315
 Eye irritation, Category 2; H319
 Specific Target Organ Toxicity (single exposure),
 Category 3; H335

4. FIRST AID MEASURES

Data for 100% Formamide

Ingestion First Aid: Rinse mouth. Rest. Refer for medical attention.

Inhalation First Aid: Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

Skin First Aid: Remove contaminated clothes. Rinse skin with plenty of water or shower.

Eye First Aid: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.

5. FIRE FIGHTING MEASURES

Data For 100% Formamide

Fire Acute Hazard: Combustible. Gives off irritating or toxic fumes (or gases) in a fire.	Fire Prevention: NO open flames.	Fire Fighting: Powder, alcohol-resistant foam, water spray, carbon dioxide.
Explosion Acute Hazard: Not Available	Not Available	Not Available
CHEMICAL DANGERS:	On combustion, forms toxic gases (nitrogen oxides). The substance decomposes on heating at 180°C producing ammonia, water, carbon monoxide and hydrogen cyanide. Reacts with oxidants. Attacks metals such as aluminium, iron, copper and natural rubber.	
PHYSICAL DANGERS:	Not Available	

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Body protection:

Depending on the risk, wear a tight, long apron and boots or suitable chemical protection clothing.
The protection clothing should be solvent resistant.

Respiratory protection:

In an emergency (e.g.: unintentional release of the substance) respiratory protection must be worn. Consider the maximum period for wear.

Respiratory protection: Gas filter A, Colour code brown.

Use insulating device for concentrations above the usage limits for filter devices, for oxygen concentrations below 17% volume, or in circumstances which are unclear.

Eye protection:

Sufficient eye protection should be worn.
Wear glasses with side protection.

Hand protection:

Use protective gloves. The glove material must be sufficiently impermeable and resistant to the substance. Check the tightness before wear. Gloves should be well cleaned before being removed, then stored in a well ventilated location. Pay attention to skin care.

Skin protection cremes do not protect sufficiently against the substance.

Textile or leather gloves are completely unsuitable.

The following materials are suitable for protective gloves (Permeation time \geq 8 hours):
Natural rubber/Natural latex - NR (0,5 mm) (use non-powdered and allergen free products)

Polychloroprene - CR (0,5 mm)

Nitrile rubber/Nitrile latex - NBR (0,35 mm)

Butyl rubber - Butyl (0,5 mm)

Fluoro carbon rubber - FKM (0,4 mm)

Polyvinyl chloride - PVC (0,5 mm)

The times listed are suggested by measurements taken at 22 °C and constant contact. Temperatures raised by warmed substances, body heat, etc. and a weakening of the effective layer thickness caused by expansion can lead to a significantly shorter breakthrough time. In case of doubt contact the gloves' manufacturer. A 1.5-times increase / decrease in the layer thickness doubles / halves the breakthrough time. This data only applies to the pure substance. Transferred to mixtures of substances, these figures should only be taken as an aid to orientation.

Environmental Precautions

Low hazard to waters. Inform the responsible authorities when very large quantities get into water, drainage, sewer, or the ground.

Method of Containment

Evacuate area. Warn affected surroundings.

The hazardous area may only be entered once suitable protective measures are implemented. Only then can the hazardous situation be removed.

Wear respiratory protection, eye protection, hand protection and body protection (see chapter Personal Protection).

Absorb any spilt liquid with an absorbent (e.g. diatomite, vermiculite, sand) and dispose of according to regulations.

Pump off larger quantities.

Afterwards ventilate area and wash spill site.

Methods of Clean-up

Use protective equipment while cleaning if necessary.

Only conduct maintenance and other work on or in the vessel or closed spaces after obtaining written permission.

Only work with vessels and lines after they have been thoroughly rinsed.

Other Information

Not Available

Data for 100% Formamide

SPILLAGE DISPOSAL	Collect leaking and spilled liquid in sealable steel (not copper) containers as far as possible. Wash away spilled liquid with plenty of water.
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7. HANDLING AND STORAGE

Handling: Wear appropriate PPE. Refer to section 8.

Storage: Store at 2 – 8°C.

Data for 100% Formamide

STORAGE	Separated from oxidants . Dry.
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8. EXPOSURE CONTROL

Data for 100% Formamide

- | | |
|---------------------|--|
| • INHALATION | Ventilation. |
| • EYES | Face shield. |
| • SKIN | Protective clothing. |
| • INGESTION | Do not eat, drink, or smoke during work. Wash hands before eating. |

Engineering Controls

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Clear with a Light Golden Color

Physical State Liquid **pH:** No data available

Data for 100% Formamide

	Boiling point: 118°C	Melting point: 2.5°C	Relative density (water = 1): 1.13	Solubility in water: very good
Vapour pressure, Pa at 20°C: about 2	Relative vapour density (air = 1): 1.6	Flash point: 154°C o.c.	Auto-ignition temperature: >500°C	

10. STABILITY AND REACTIVITY

Chemical Stability Stable under normal conditions

Incompatibility Materials to Avoid Data for 100% Formamide: Collocated storage with the following substances is prohibited:

- Pharmaceuticals, foods, and animal feeds including additives.
- Infectious, radioactive und explosive substances.
- Gases.
- Other explosive substances of storage class 4.1A.
- Strongly oxidizing substances of storage class 5.1A.
- Ammonium nitrate and preparations containing ammonium nitrate.
- Organic peroxides and self reactive substances.

Hazardous Decomposition Products

Data for 100% Formamide: Attention! Hazardous decomposition products may occur.
Nitrous gases (nitric oxides)
Hydrogen cyanide vapours

Hazardous Polymerization

Not Available

Data for 100% Formamide

CHEMICAL DANGERS:	On combustion, forms toxic gases (nitrogen oxides). The substance decomposes on heating at 180°C producing ammonia, water, carbon monoxide and hydrogen cyanide. Reacts with oxidants. Attacks metals such as aluminium, iron, copper and natural rubber.
PHYSICAL DANGERS:	Not Available

11. TOXICOLOGY MEASURES

Acute Toxicity

The toxicological risks are minor due to the low concentration of hazardous ingredients. The following toxicological information is for the hazardous ingredient in pure form.

LD50 Oral Data for 100% Formamide: LD50 oral rat

Value: 5580 mg/kg
Reference: Unknown

LD50 Dermal Data for 100% Formamide: LD50 dermal

Species: Rabbit
Value: 17000 mg/kg
Reference: National Technical Information Service. Vol. OTS0528421,

LC50 Inhalation**Chronic Toxicity**

Carcinogenicity Not Available

Irritation H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.

Corrosivity Not Available

Sensitization Not Available

Neurological Effects Not Available

Mutagenic Effects Not Available

Reproductive Effects Data for 100% Formamide: H360D: May damage the unborn child.

Developmental Effects Not Available

Target Organ Effects Data for 100% Formamide: The main intake pathways for formamide are via the skin and the respiratory tract.

Other adverse effects Not Available

12. ECOLOGICAL MEASURES

Ecotoxicity

Data for 100% Sodium Dodecyl Sulfate:
LC50 Fish (96 hours)
Minimum: 0,59 mg/l
Maximum: 38 mg/l
Median: 7,97 mg/l
Study number: 43
Reference for median:
Fogels, A., and J.B. Sprague 1977. Comparative Short-Term Tolerance of Zebrafish, Flagfish, and Rainbow Trout to Five Poisons Including Potential Reference Toxicants. Water Res. 11(9):811-817

LC50 Crustaceans (48 hours)

Minimum: 1,26 mg/l
 Maximum: 162 mg/l
 Median: 12,1 mg/l
 Study number: 133
 Reference for median:
 Lewis, P.A., and W.B. Horning II 1991. Differences in Acute Toxicity Test Results of Three Reference Toxicants on Daphnia at Two Temperatures. Environ.Toxicol.Chem. 10:1351-1357

Persistence/Degradability Data for 100% Dodecyl Sulfate, Sodium Salt: Fish (Fundulus heteroclitus) Static 96hr LC50 1.2 mg/L (Slightly harmful in the aquatic environment or are otherwise designed for biocidal action)

Mobility in Environmental Media Not Available

Bioaccumulation/Accumulation Data for 100% Dodecyl Sulfate, Sodium Salt: Fish (Proterorhinus marmoratus 240 day 15°C 4 mg/L BCF 7.15 (Not bioaccumulative)

13. DISPOSAL MEASURES

Waste Disposal Method: Observe all Federal, State and Local laws concerning health and pollution. Avoid escape into water, drainage, sewer, or the ground. Collection of small amounts of substance: Place in a collection container for halogen-free organic solvents and solutions of halogen-free organic substances. Collection vessels must be clearly labelled with a systematic description of their contents. Store the vessels in a well-ventilated location. Entrust them to the appropriate authorities for disposal.

Contaminated Packaging: Avoid contact with skin and clothing. Dispose of in compliance with the respective national and local regulations.

US EPA Waste Number: Not Available

14. TRANSPORTATION MEASURES

DOT: Not Available

IATA: Not Available

ADR (road)/ RID (rail): Not Available

IMDG (sea): Not Available

General Transport Regulations Not Available

15. REGULATORY MEASURES

This product is a mixture that may contain one or more hazardous chemicals. The hazardous ingredients listed are only those as required by 29 CFR 1910.1200 q 2.C1.

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains no chemical or chemicals which are subject to the reporting requirements of the Act and Title 40n of the Code of Federal Regulations, Part 372.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (See 40 CFR 61)

This product contains no chemical or chemicals which are subject to the reporting requirements of the Clean Air Act, Section 112 HAPS

State Regulations

California Proposition 65:

This product contains the following Proposition 65 chemicals: None Listed

State Right to Know Act

Chemical Name	Formamide	Sodium Dodecyl Sulfate
Massachusetts	Listed	Not Listed
New Jersey	Listed	Not Listed
Pennsylvania	Listed	Not Listed

New York	Listed	Not Listed
Rhode Island	Not Listed	Not Listed

International Inventories

Chemical Name	Formamide	Sodium Dodecyl Sulfate
TSCA	Listed	Listed
DSL	Listed	Listed
NDSL	Not Listed	Not Listed
EINECS	Listed	Listed
CHINA	Listed	Listed
KECL	Listed	Listed
JAPAN:	Listed	Listed
AICS	Listed	Listed

EU Regulations

Annex I Index#	Data for Formamide: 616-052-00-8
Classification	Reproductive toxicity, Category 1B; H360D Acute toxicity, Category 4, oral; H302 Acute toxicity, Category 3, dermal; H311 Skin irritation, Category 2; H315 Eye irritation, Category 2; H319 Specific Target Organ Toxicity (single exposure), Category 3; H335
Risk Phrases	H360D: May damage the unborn child. H302: Harmful if swallowed. H311: Toxic in contact with skin. H315: Causes skin irritation. H319: Causes serious eye irritation. H335: May cause respiratory irritation.
Safety Phrases	P201: Obtain special instructions before use. P308+P313: IF exposed or concerned: Get medical advice/attention. P280: Wear protective gloves/protective clothing/eye protection/face protection. P302+P352: IF ON SKIN: Wash with plenty of soap and water. P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P309+P310: IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.
Symbols and Indications of Danger	GHS08 Dgr: Danger
Specific Concentration Limits	Not Available
Export and Import	This substance is not listed in the Annex I of Regulation (EC) No 649/2012.
European Priority List	This substance is not listed in a priority list (as foreseen under Council Regulation (EEC) No 793/93 on the evaluation and control of the risks of existing substances.).

16. OTHER INFORMATION

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. KPL shall not be held liable for any damage resulting from handling or from contact with the above product. Users should make their own investigations to determine the suitability of the information for their particular purposes. This material is sold for research purposes and is intended as laboratory reagents only. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals.

Revision Date: 9/29/2014