

# Material Safety Data Sheet

## Ink Cartridge(C)(MSDS:H086080-00-NA-E)

### 1. Product and company identification

<b>Product name</b>	: Ink Cartridge(C)(MSDS:H086080-00-NA-E)
<b>Material uses</b>	: Ink.
<b>Supplier/Manufacturer</b>	: Noritsu Koki Co Limited 579-1, Umehara, Wakayama-shi 640-8550, Japan Tel: +81 73 454 0309 Fax: +81 73 454 4618 Emergency: +81 73 454 0309 Email: msds@nkc.noritsu.co.jp
<b>Code</b>	: H086080-00
<b>Validation date</b>	: 03/01/2009
<b>Responsible name</b>	: Atrion Regulatory Services, Inc.
<b>In case of emergency</b>	: CHEMTREC, U.S. : 1-800-424-9300 International: +1-703-527-3887
<b>Product type</b>	: Liquid.

### 2. Hazards identification

<b>Physical state</b>	: Liquid.
<b>Odor</b>	: Slight
<b>OSHA/HCS status</b>	: This product is an Article under the United States Hazard Communication System. Therefore it is EXEMPTED from the regulatory requirements under HCS.
<b>Emergency overview</b>	: WARNING! CAUSES EYE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.  <b>This MSDS shows the hazards linked with the content of the cartridge. The cartridge itself, does not present any hazard when properly used.</b> Avoid contact with skin and clothing. Wash thoroughly after handling.
<b>Routes of entry</b>	: Dermal contact. Eye contact. Inhalation. Ingestion.
<b>Potential acute health effects</b>	
<b>Inhalation</b>	: Intentional exposure to ink vapors (mist) will cause respiratory tract irritation. At extremely high temperature (>300°C), glycerol will decompose into acrolein, which has eye irritant.
<b>Ingestion</b>	: May cause upset stomach.
<b>Skin</b>	: Ink contact with skin may cause irritation, swelling or redness.
<b>Eyes</b>	: Ink contact with eye may be mildly irritating. At extremely high temperature (>300°C), glycerol will decompose into acrolein, which has eye irritant.
<b>Potential chronic health effects</b>	
<b>Chronic effects</b>	: Contains material that may cause target organ damage, based on animal data.
<b>Carcinogenicity</b>	: No known significant effects or critical hazards.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Teratogenicity</b>	: No known significant effects or critical hazards.
<b>Developmental effects</b>	: No known significant effects or critical hazards.
<b>Fertility effects</b>	: No known significant effects or critical hazards.
<b>Target organs</b>	: Contains material which may cause damage to the following organs: kidneys, upper respiratory tract, skin, eye, lens or cornea.
<b>Over-exposure signs/symptoms</b>	
<b>Inhalation</b>	: No specific data.

## 2. Hazards identification

- Ingestion** : No specific data.
- Skin** : No specific data.
- Eyes** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Medical conditions aggravated by over-exposure** : Repeated or prolonged exposure is not known to aggravate any medical condition.

See toxicological information (section 11)

## 3. Composition/information on ingredients

Name	CAS number	%
2-[2-(2-Butoxyethoxy)ethoxy]ethanol	143-22-6	5 - 10
Glycerol	56-81-5	5 - 10

### Canada

Name	CAS number	%
2-[2-(2-Butoxyethoxy)ethoxy]ethanol	143-22-6	5 - 10
Glycerol	56-81-5	5 - 10

### Mexico

Name	UN number	IDLH	Classification				CAS number	%
			H	F	R	Special		
Glycerol	Not regulated.	-	0	1	0	56-81-5	5 - 10	
2-[2-(2-Butoxyethoxy)ethoxy]ethanol	Not regulated.	-	1	1	0	143-22-6	5 - 10	

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

## 4. First aid measures

- Eye contact** : Check for and remove any contact lenses. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.
- Skin contact** : Wash with soap and water. Get medical attention if symptoms occur.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms appear.
- Ingestion** : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## 5. Fire-fighting measures

### Extinguishing media

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## 6. Accidental release measures

- Personal precautions** : No special precaution is required. Use suitable protective equipment (section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up**
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : For small spills coming from a broken cartridge, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. Place unbroken cartridge in an appropriate container for disposal.

## 7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Keep container tightly closed.

## 8. Exposure controls/personal protection

### United States

Ingredient	Exposure limits
Glycerol	<b>ACGIH TLV (United States, 1/2008).</b> TWA: 10 mg/m <sup>3</sup> 8 hour(s). Form: Mist <b>OSHA PEL (United States, 11/2006).</b> TWA: 5 mg/m <sup>3</sup> 8 hour(s). Form: Respirable fraction TWA: 15 mg/m <sup>3</sup> 8 hour(s). Form: Total dust

### Canada

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			Notations	
Ingredient	List name	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other		
Glycerol	US ACGIH 1/2008	-	10	-	-	-	-	-	-	-	[a]	
	AB 6/2008	-	10	-	-	-	-	-	-	-	[a]	
	BC 6/2008	-	10	-	-	-	-	-	-	-	[a]	
			-	3	-	-	-	-	-	-	-	[b]
	ON 6/2008	-	10	-	-	-	-	-	-	-	-	[c]
	QC 6/2008	-	10	-	-	-	-	-	-	-	-	[c]

## 8. Exposure controls/personal protection

**Form:** [a]Mist [b]Respirable mist [c]mist

**Notes:** [A]Inhalable fraction. See Appendix C, paragraph A. Inhalable Particulate Mass TLVs (IPM-TLVs) for those materials that are hazardous when deposited anywhere in the respiratory tract.

### Mexico

Ingredient	Exposure limits
Glycerol	<b>NOM-010-STPS (Mexico, 9/2000).</b> LMPE-PPT: 10 mg/m <sup>3</sup> 8 hour(s). Form: mist

**Consult local authorities for acceptable exposure limits.**

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. >8 hours (breakthrough time): Disposable vinyl gloves.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## 9. Physical and chemical properties

- Physical state** : Liquid.
- Flash point** : Closed cup: >100°C (>212°F) [Pensky-Martens.]
- Color** : Cyan
- Odor** : Slight
- pH** : 8.2 to 9.6 @ 20°C
- Melting/freezing point** : -16°C (3.2°F)
- Relative density** : 1.072 @ 20°C
- Vapor density** : >1 [Air = 1]
- Viscosity** : Dynamic: <5 mPa·s (<5 cP)
- Solubility** : Miscible in water.

## 10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : High and freezing temperatures.
- Materials to avoid** : Reactive or incompatible with the following materials: oxidizing materials, explosives.
- Hazardous decomposition products** : Acrolein (CAS number 107-02-8); When glycerol is heated over 300°C, it will decompose into acrolein.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

## 11. Toxicological information

### Acute toxicity

Product/ingredient name	Species	Dose	Result	Exposure
2-[2-(2-Butoxyethoxy)ethoxy]ethanol	Rabbit	3540 uL/kg	LD50 Dermal	-
	Rat	5300 mg/kg	LD50 Oral	-
Glycerol	Rabbit	>10 g/kg	LD50 Dermal	-
	Rat	12600 mg/kg	LD50 Oral	-

- Inhalation** : Intentional exposure to ink vapors (mist) will cause respiratory tract irritation. At extremely high temperature (>300°C), glycerol will decompose into acrolein, which has eye irritant.
- Ingestion** : May cause upset stomach.
- Skin** : Ink contact with skin may cause irritation, swelling or redness.
- Eyes** : Ink contact with eye may be mildly irritating. At extremely high temperature (>300°C), glycerol will decompose into acrolein, which has eye irritant.

## 12. Ecological information

- Ecotoxicity** : No known significant effects or critical hazards.

### Aquatic ecotoxicity

Product/ingredient name	Species	Exposure	Result
Glycerol	Fish	96 hours	Acute LC50 54 to 57 ml/L

- Other adverse effects** : No known significant effects or critical hazards.

## 13. Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## 14. Transport information

### Regulatory information

- DOT/ TDG / Mexico IMDG/ IATA** : Not regulated.

## 15. Regulatory information

### United States

- HCS Classification** : This product is an Article under the United States Hazard Communication System. Therefore it is EXEMPTED from the regulatory requirements under HCS.
- U.S. Federal regulations** : **United States inventory (TSCA 8b)**: All components are listed or exempted.  
TSCA precursor chemical list: Triethanolamine
- SARA 302/304/311/312 extremely hazardous substances**: No products were found.  
**SARA 302/304 emergency planning and notification**: No products were found.  
**SARA 302/304/311/312 hazardous chemicals**: Glycerol  
**SARA 311/312 MSDS distribution - chemical inventory - hazard identification**:  
Glycerol: Immediate (acute) health hazard, Delayed (chronic) health hazard
- Clean Water Act (CWA) 307**: No products were found.  
**Clean Water Act (CWA) 311**: No products were found.  
**Clean Air Act (CAA) 112 accidental release prevention**: No products were found.  
**Clean Air Act (CAA) 112 regulated flammable substances**: No products were found.  
**Clean Air Act (CAA) 112 regulated toxic substances**: No products were found.
- Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)** : Not listed
- Clean Air Act Section 602 Class I Substances** : Not listed
- Clean Air Act Section 602 Class II Substances** : Not listed
- DEA List I Chemicals (Precursor Chemicals)** : Not listed
- DEA List II Chemicals (Essential Chemicals)** : Not listed

### SARA 313

	Product name	CAS number	Concentration
<b>Form R - Reporting requirements</b>	2-[2-(2-Butoxyethoxy)ethoxy]ethanol	143-22-6	5 - 10
<b>Supplier notification</b>	2-[2-(2-Butoxyethoxy)ethoxy]ethanol	143-22-6	5 - 10

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

- State regulations** : **Connecticut Carcinogen Reporting**: None of the components are listed.  
**Connecticut Hazardous Material Survey**: None of the components are listed.  
**Florida substances**: None of the components are listed.  
**Illinois Chemical Safety Act**: None of the components are listed.  
**Illinois Toxic Substances Disclosure to Employee Act**: None of the components are listed.
- Louisiana Reporting**: None of the components are listed.  
**Louisiana Spill**: None of the components are listed.  
**Massachusetts Spill**: None of the components are listed.  
**Massachusetts Substances**: The following components are listed: Glycerol  
**Michigan Critical Material**: None of the components are listed.  
**Minnesota Hazardous Substances**: None of the components are listed.  
**New Jersey Hazardous Substances**: The following components are listed: 2-[2-(2-Butoxyethoxy)ethoxy]ethanol  
**New Jersey Spill**: None of the components are listed.  
**New Jersey Toxic Catastrophe Prevention Act**: None of the components are listed.  
**New York Acutely Hazardous Substances**: None of the components are listed.  
**New York Toxic Chemical Release Reporting**: None of the components are listed.  
**Pennsylvania RTK Hazardous Substances**: The following components are listed: 2-[2-

## 15. Regulatory information

(2-Butoxyethoxy)ethoxy]ethanol; Glycerol

**Rhode Island Hazardous Substances:** None of the components are listed.

### Canada

#### WHMIS (Canada)

: This product is a manufactured product under the Canadian WHMIS. Therefore it is EXEMPTED from the regulatory requirements under WHMIS.

#### Canadian lists

: **CEPA Toxic substances:** None of the components are listed.  
**Canadian ARET:** None of the components are listed.  
**Canadian NPRI:** None of the components are listed.  
**Alberta Designated Substances:** None of the components are listed.  
**Ontario Designated Substances:** None of the components are listed.  
**Quebec Designated Substances:** None of the components are listed.

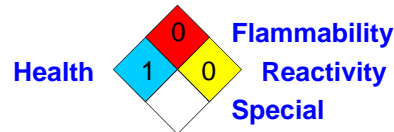
**Canada inventory** : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

### Mexico

#### Classification

:



### International regulations

#### International lists

: **Australia inventory (AICS):** All components are listed or exempted.  
**China inventory (IECSC):** All components are listed or exempted.  
**Japan inventory:** All components are listed or exempted.  
**Korea inventory:** All components are listed or exempted.  
**New Zealand Inventory of Chemicals (NZIoC):** All components are listed or exempted.  
**Philippines inventory (PICCS):** All components are listed or exempted.

#### Chemical Weapons Convention List Schedule I Chemicals

: Not listed

#### Chemical Weapons Convention List Schedule II Chemicals

: Not listed

#### Chemical Weapons Convention List Schedule III Chemicals

: Not listed

## 16. Other information

#### Label requirements

: CAUSES EYE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

#### Hazardous Material Information System (U.S.A.)

:

Health	*	1
Flammability		0
Physical hazards		0
Personal protection		

The customer is responsible for determining the PPE code for this material.



## 16. Other information

National Fire Protection :  
Association (U.S.A.)



Date of issue : 03/01/2009  
Version : 1

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.