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

1.1. Product identifier

INKU-SF-220-BK 220 ML

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/preparation

Industrial uses: Digital ink

Uses advised against

Use by consumers (private households), as the necessary technical measures and personal protective equipment are not available to private households.

1.3. Details of the supplier of the safety data sheet

Address/Manufacturer

Roland DG EMEA NV
Bell-Telephonelaan 2G
B-2440 Geel
Belgien

Telephone no.	+32 14575911
E-mail address of person responsible for this SDS	deu-demand-planning@rolanddg.com
Information provided by / telephone	Department product safety

1.4. Emergency telephone number

24h: +49 228 19240 (Giftnotruf Bonn) , +32 14 57 59 11 (Roland DG Benelux NV) (Only available during office hours 8:30-17:00.)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (Regulation (EC) No. 1272/2008)

Classification (Regulation (EC) No. 1272/2008)

Eye Dam. 1	H318

2.2. Label elements

Labelling according to regulation (EC) No 1272/2008

Hazard pictograms

Signal word

Danger

Hazard statements

H318	Causes serious eye damage.

Precautionary statements

P280	Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor.

Hazardous component(s) to be indicated on label (Regulation (EC) No. 1272/2008)

contains Gamma-butyrolactone

2.3. Other hazards

No special hazards have to be mentioned.
The product contains no PBT substances. The product contains no vPvB substances. This product does not contain a substance that has endocrine disrupting properties with respect to human. The product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous ingredients

Gamma-butyrolactone

CAS No.	96-48-0				
EINECS no.	202-509-5				
Registration no.	01-2119471839-21				
Concentration	>=	10	<	20	%

Classification (Regulation (EC) No. 1272/2008)

Acute Tox. 4	H302
Eye Dam. 1	H318
STOT SE 3	H336

ATE	oral	1.582	mg/kg

Diethyleneglycoldiethylether

CAS No.	112-36-7				
EINECS no.	203-963-7				
Concentration	>=	1	<	10	%

Classification (Regulation (EC) No. 1272/2008)

Skin Irrit. 2	H315

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If unconscious place in recovery position and seek medical advice.

After inhalation

Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

After skin contact

Remove contaminated clothing. Wash skin thoroughly with soap and water or use recognised skin cleanser. Do NOT use solvents or thinners.

After eye contact

Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.

After ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain

immediate medical attention. Keep at rest. Do NOT induce vomiting.

Adhere to personal protective measures when giving first aid

Use personal protective equipment in case of possible contact with the product (see section 8).

4.2. Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11. Further symptoms are possible.

4.3. Indication of any immediate medical attention and special treatment needed

Hints for the physician / treatment

Treat symptomatically

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Aalcohol resistant foam, CO2, powders, water spray/mist

Non suitable extinguishing media

water jet

5.2. Special hazards arising from the substance or mixture

In the event of fire the following can be released: Carbon dioxide (CO2); Carbon monoxide (CO); dense black smoke; Hydrogen chloride (HCl); Exposure to decomposition products may cause a health hazard. Appropriate breathing apparatus may be required.

5.3. Advice for firefighters

Special protective equipment for fire-fighting

Use self-contained breathing apparatus. Wear full chemical protective clothing. Fire fighter's clothing must conform to European standard EN469.

Other information

Cool closed containers exposed to fire with water. Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Keep away sources of ignition. Wear protective goggles and gloves. Remove persons to safety. Ensure adequate ventilation. Keep away unprotected persons. Avoid contact with skin, eyes and clothing. Avoid breathing vapours. For emergency responders: Wear personal protective equipment. Use breathing apparatus if exposed to vapours/dust/aerosol.

6.2. Environmental precautions

Do not allow to enter drains or waterways. If the product contaminates lakes, rivers or sewage, inform appropriate authorities in accordance with local regulations.

6.3. Methods and material for containment and cleaning up

Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations (see section 13). Clean preferably with a detergent - avoid use of solvents.

6.4. Reference to other sections

Information regarding personal protective measures, see Section 8. Information regarding waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Due to the organic solvents' content of the mixture: Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than the occupational exposure limits. In addition, the product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. Mixture may charge electrostatically: always use earthing leads when transferring from one container to another. Operators should wear anti-static footwear and clothing and floors should be of the conducting type. Isolate from sources of heat, sparks and open flame. No sparking tools should be used. Avoid skin and eye contact. Avoid the inhalation of particulates and spray mist arising from the application of this mixture. Smoking, eating and drinking shall be prohibited in application area. For personal protection see Section 8. Never use pressure to empty: container is not a pressure vessel. Always keep in containers of same material as the original one. Comply with the health and safety at work laws. Do not allow to enter drains or water courses.

Advice on protection against fire and explosion

Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air.

Classification of fires / temperature class / Ignition group / Dust explosion class

Classification of fires	B (Combustible liquid substances)
Temperature class	T4

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Store in accordance with national regulation

Hints on storage assembly

Store away from oxidising agents, from strongly alkaline and strongly acid materials.

Further information on storage conditions

Observe label precautions. Store between 15 and 30 °C in a dry, well ventilated place away from sources of heat and direct sunlight. If the storage conditions are not observed, the minimum shelf life is no longer guaranteed. Due to the organic solvents' content of the mixture: Keep container tightly closed. Keep away from sources of ignition. No smoking. Prevent unauthorised access. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3. Specific end use(s)

Digital ink

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Derived No/Minimal Effect Levels (DNEL/DMEL)

Gamma-butyrolactone

Type of value	Derived No Effect Level (DNEL)	
Reference group	Worker	
Duration of exposure	Long term	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	130	mg/m³

Type of value	Derived No Effect Level (DNEL)
Reference group	Worker
Duration of exposure	Long term
Route of exposure	dermal
Mode of action	Systemic effects

Concentration	19	mg/kg
Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long term	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	28	mg/m³
Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long term	
Route of exposure	dermal	
Mode of action	Systemic effects	
Concentration	8	mg/cm²
Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long term	
Route of exposure	oral	
Mode of action	Systemic effects	
Concentration	8	mg/kg
Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Acute	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	340	mg/m³
Type of value	Derived No Effect Level (DNEL)	
Reference group	Worker	
Duration of exposure	Acute	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	958	mg/m³

Diethyleneglycoldiethylether

Type of value	Derived No Effect Level (DNEL)	
Reference group	Worker	
Duration of exposure	Long term	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	50,05	mg/m³
Type of value	Derived No Effect Level (DNEL)	
Reference group	Worker	
Duration of exposure	Long term	
Route of exposure	dermal	
Mode of action	Systemic effects	
Concentration	3,43	mg/kg
Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long term	
Route of exposure	inhalative	
Mode of action	Systemic effects	

Concentration	5,96	mg/m³

Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long term	
Route of exposure	dermal	
Mode of action	Systemic effects	
Concentration	1,71	mg/kg

Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long term	
Route of exposure	oral	
Mode of action	Systemic effects	
Concentration	1,71	mg/kg

Predicted No Effect Concentration (PNEC)

Gamma-butyrolactone

Type of value	PNEC	
Type	Freshwater	
Concentration	0,056	mg/l

Type of value	PNEC	
Type	Saltwater	
Concentration	0,0056	mg/l

Type of value	PNEC	
Type	Water (intermittent release)	
Concentration	0,56	mg/l

Type of value	PNEC	
Type	Freshwater sediment	
Concentration	0,24	mg/kg

Type of value	PNEC	
Type	Marine sediment	
Concentration	0,02	mg/kg

Type of value	PNEC	
Type	Soil	
Concentration	0,014683	mg/kg

Type of value	PNEC	
Type	Sewage treatment plant (STP)	
Concentration	452	mg/l

8.2. Exposure controls

Exposure controls

Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and solvent vapour below the OEL, suitable respiratory protection must be worn.

General protective and hygiene measures

Observe the usual precautions for handling chemicals. Wearing closed work clothing is required. Wash hands and / or face before breaks and after work. Take off dirty, soaked clothes immediately. Wash soiled clothing before re-use. Store work clothing separately.

Respiratory protection

If workers could be exposed to concentrations above the exposure limit they should use a respirator to EN 140, fitted with a filter suitable for both particulates and vapours, to EN 14387, with an assigned protection factor of at least 10 (e.g. A2P3) . Selection of any respiratory protective equipment should ensure that it is adequate to reduce exposure to protect the worker's health and is suitable for the wearer, task and environment, including consideration of the facial features of the wearer.

Hand protection

There is no one glove material or combination of materials that will give unlimited resistance to any individual or combination of chemicals.
Use gloves tested according to EN 374.
For prolonged or repeated handling, use

Appropriate Material	Butyl rubber		
Material thickness	>	0,7	mm
Breakthrough time	>	480	min

The breakthrough time must be greater than the end use time of the product.
The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.
Gloves should be replaced regularly and if there is any sign of damage to the glove material.
Always ensure that gloves are free from defects and that they are stored and used correctly.
The performance or effectiveness of the glove may be reduced by physical/ chemical damage and poor maintenance.
Barrier creams may help to protect the exposed areas of the skin, they should however not be applied once exposure has occurred.

Eye protection

Use safety eyewear tested according to EN ISO 16321-1 designed to protect against splash of liquids.

Body protection

Personnel should wear anti-static clothing made of natural fibre or of high temperature resistant synthetic fibre. Cotton or cotton/synthetic overalls or coveralls are normally suitable.

Environmental exposure controls

Do not allow to enter drains or water courses. If the legally prescribed emission limits are exceeded, a suitable exhaust air purification system must be installed.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	liquid
Colour	black
Odour	solvent-like

Melting point

Remarks	Not applicable due to nature of the product

Freezing point

Remarks	Not applicable due to nature of the product

Boiling point or initial boiling point and boiling range

Reference substance	(2-Ethoxyethyl)methyl ether			
Value	appr.	176		°C
Pressure		1.013	hPa	
Source	Literature value			

Flammability

Flammable.

Upper and lower explosive limits

Reference substance	Gamma-butyrolactone		
Lower explosion limit	appr.	0,3	%(V)

Reference substance	Gamma-butyrolactone	
Upper explosion limit	appr. 16	%(V)
Source	Literature value	

Flash point

Value	68	°C
Method	ASTM D 6450 (CCCFP)	

Auto-ignition temperature

Value	appr. 174	°C
Source	Literature value	

Decomposition temperature

Remarks	No decomposition if used as prescribed.

pH value

Remarks	Not applicable
Remarks	substance/mixture is non-soluble (in water)

Viscosity

kinematic

Value	3	to	10	mm²/s
Temperature	20	°C		
Method	derived from dynamic viscosity			

Solubility(ies)

Remarks	Not applicable due to nature of the product

Partition coefficient n-octanol/water (log value)

Remarks	Not applicable due to nature of the product

Vapour pressure

Value	1,06		hPa
Temperature	20	°C	
Method	calculated		

Density and/or relative density

Value	0,976		g/cm³
Temperature	20	°C	
Method	DIN EN ISO 2811		

Relative vapour density

Value	> 1
Source	Literature value

Particle characteristics

Remarks	Not applicable due to nature of the product

9.2. Other information

Other information

The physical specifications are approximate values and refer to the used safety relevant component(s).

SECTION 10: Stability and reactivity

10.1. Reactivity

No hazardous reactions when stored and handled according to prescribed instructions.

10.2. Chemical stability

Stable under recommended storage and handling conditions (see section 7).

10.3. Possibility of hazardous reactions

Keep away from oxidising agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.

10.4. Conditions to avoid

Protect from heat/overheating. When exposed to high temperatures may produce hazardous decomposition products. Avoid high concentrations of solvent vapours. Observe the notes on ventilation (section 8).

10.5. Incompatible materials

Oxidising agents, strongly alkaline substances, Strongly acidic substances

10.6. Hazardous decomposition products

See chapter 5.2 (Firefighting measures - Special hazards arising from the substance or mixture). No decomposition during or intended use (see section 1).

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute oral toxicity

ATE	>	2.000	mg/kg
Method	calculated value (Regulation (EC) No. 1272/2008)		

Acute oral toxicity (Components)

Gamma-butyrolactone

Species	rat		
LD50		1582	mg/kg
Method	OECD 401		

Acute dermal toxicity

Remarks: Based on available data, the classification criteria are not met.

Acute inhalational toxicity

Remarks: Based on available data, the classification criteria are not met.

Acute inhalative toxicity (Components)

Gamma-butyrolactone

Species	rat		
LC0		5,1	mg/l
Duration of exposure		4	h
Administration/Form	Vapors		
Method	OECD 403		

Skin corrosion/irritation

Remarks: Based on available data, the classification criteria are not met.

Serious eye damage/irritation

evaluation	corrosive
Remarks	The classification criteria are met.

Serious eye damage/irritation (Components)

Gamma-butyrolactone

Species	rabbit
evaluation	irritant - risk of serious damage to eyes
Method	OECD 405

Sensitization

Remarks: Based on available data, the classification criteria are not met.

Mutagenicity

Remarks: Based on available data, the classification criteria are not met.

Reproductive toxicity

Remarks: Based on available data, the classification criteria are not met.

Carcinogenicity

Remarks Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity (STOT)

Single exposure

Remarks Based on available data, the classification criteria are not met.

Repeated exposure

Remarks Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity (STOT) (Components)

Gamma-butyrolactone

Single exposure

evaluation May be irritating to respiratory tract.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2 Information on other hazards

Endocrine disrupting properties with respect to humans

The product does not contain a substance that has endocrine disrupting properties with respect to humans.

Experience in practice

Exposure to component solvents vapours concentration in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on kidney, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin. Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin resulting in non-allergic contact dermatitis and absorption through the skin. The liquid splashed in the eyes may cause irritation. Causes serious eye damage. Ingestion may cause nausea, diarrhoea and vomiting. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Other information

There are no data available on the mixture itself.
The mixture has been assessed following the additivity method of the CLP Regulation (EC) No 1272/2008 and classified for toxicological hazards accordingly.

SECTION 12: Ecological information

12.1. Toxicity

General information

There are no data available on the mixture itself.Do not allow to enter drains or water courses.The mixture has been assessed following the summation method of the CLP Regulation (EC) No 1272/2008 and is not classified as dangerous for the environment.

12.2. Persistence and degradability

General information

There are no data available on the mixture itself.

12.3. Bioaccumulative potential

General information

There are no data available on the mixture itself.

Partition coefficient n-octanol/water (log value)

Remarks Not applicable due to nature of the product

12.4. Mobility in soil

General information

There are no data available on the mixture itself.

12.5. Results of PBT and vPvB assessment

General information

There are no data available on the mixture itself.

Results of PBT and vPvB assessment

The product contains no PBT substances
The product contains no vPvB substances.

12.6 Endocrine disrupting properties

Endocrine disrupting properties with respect to the envrionment

The product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

General information

There are no data available on the mixture itself.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations for the product

Do not allow to enter drains or water courses.
Wastes and emptied containers should be classified in accordance with relevant national regulation.
The European Waste Catalogue classification of this product, when disposed of as waste is
EWC waste code 08 03 12* waste ink containing dangerous substances
If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned.
For further information contact your local waste authority.

Disposal recommendations for packaging

Using information provided in this safety data sheet, advice should be obtained from the relevant waste authority on the classification of empty containers.
Empty containers must be scrapped or reconditioned.
Dispose of containers contaminated by the product in accordance with local or national legal provisions.

SECTION 14: Transport information

	Land transport ADR/RID	Marine transport IMDG/GGVSee	Air transport ICAO/IATA
14.1. UN number	The product does not constitute a hazardous substance in land transport.-	The product does not constitute a hazardous substance in sea transport.-	The product does not constitute a hazardous substance in air transport.-
14.2. UN proper shipping name	-	-	-
14.3. Transport hazard class(es)	-	-	-
Subsidiary risk		-	-
Label			
14.4. Packing group	-	-	-
Transport category	0		

Information for all modes of transport

14.6. Special precautions for user

Transport within the user's premises:
Always transport in closed containers that are upright and secure.
Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Other information

14.7 Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

VOC

VOC (EU)	92,09	%
VOC (EU)	898,8	g/l

Other regulations, restrictions and prohibition regulations

The product complies with the requirements of the Persistent Organic Pollutants Regulation 2019/1021.
The product complies with the requirements of Regulation 1005/2009 on substances that deplete the ozone layer.
The product is not subject to Regulation 649/2012 on the export and import of dangerous chemicals.

Other information

The product does not contain substances of very high concern (SVHC).

Other information

All components are contained in the ECL inventory.
All components are contained in the DSL or NDSL inventory.
All components are contained in the TSCA inventory or exempted.
All components are contained in the IECSC inventory.

15.2. Chemical safety assessment

For this preparation a chemical safety assessment has not been carried out.

SECTION 16: Other information

Hazard statements listed in Chapter 3

H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H336	May cause drowsiness or dizziness.

CLP categories listed in Chapter 3

Acute Tox. 4	Acute toxicity, Category 4
Eye Dam. 1	Serious eye damage, Category 1
Skin Irrit. 2	Skin irritation, Category 2
STOT SE 3	Specific target organ toxicity - single exposure, Category 3

Supplemental information

Relevant changes compared with the previous version of the safety data sheet are marked with: ***
This information is based on our present state of knowledge. However, it should not constitute a guarantee for any specific product properties and shall not establish a legally valid relationship.
The information in this Safety Data Sheet is based on the present state of knowledge and current legislation.
It provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.
The product should not be used for purposes other than those shown in Section 1 without first referring to the supplier and obtaining written handling instructions.
As the specific conditions of use of the product are outside the supplier’s control, the user is responsible for ensuring that the requirements of relevant legislation are complied with.
The information contained in this safety data sheet does not constitute the user’s own assessment of workplace risks, as required by other health and safety legislation.