

SAFETY DATA SHEET

1. Identification of the substance/preparation and of the company/undertaking

1.1) Product Identifier

Trade name	BETTER GEL INK (Black, Blue, Red, Green, Violet, Lavender, Turquoise, Lime, Blueblack, Sky Blue, Brown, Orange, Pink, Yellow, Light Orange, Light Violet) LY-8.120.109, LY-8.120.111, LY-8.120.122, LY-1.865.152, LY1.865.163, LY-1.865.174, LY-1.865.185, LY-5.366.212, LY-5.366.223, LY-5.366.234, LY-1.484.691, LY-1.484.703, LY-1.484.714, LY-1.859.947, Mixture
EC No.	
REACH Registration	No data
CAS No.	Mixture

1.2) Relevant Identified uses of the substance or mixture and uses advised against

Relevant Identified uses	Pen ink
Uses advised against	No data

1.3) Details of the supplier of the safety data sheet

Manufacturer/Supplier	SUHAN CORPORATION
Address	#17, Cheongyong 1-gil, Hoengseong-eup, Hoengseong-gun, Gangwon-do, Korea
Telephone	+82-33-342-0601
E-mail	hjkoh@suhancorp.co.kr

1.4) Emergency telephone number

Telephone number	+82-33-342-0601
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2. Hazards identification

2.1) Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Not classified
Ingredients of unknown toxicity	Percentage of the mixture consisting of ingredient(s) of unknown toxicity : 0%
Ingredients of unknown ecotoxicity	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment : 0%

Classification according to Directive 1999/45/EC [DPD]

Classification	Not classified
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2.2) Label elements

Hazard pictogram(s)	Not applicable
Signal word	No signal word

Hazard statements	No Hazard statements
Additional warning phrases	SDS available on request
Precautionary statements	
Prevention	Not classified
Response	Not classified
Storage	Not classified
Disposal	Not classified

2.3) Other Hazards

Other hazards which do not result in classification Not applicable

3. Composition/Information on ingredients

Product definition (REACH) Mixture

Hazardous components

Product/Ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation [EC] No. 1272/2008 [CLP]	
1,2-Benzisothiazolin-3-one	CAS No. : 2634-33-5 EC No. : 220-120-9	< 1	Xn; R22 Xi; R38-R41, R43 N; R50	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Acute 1; H400	[1]
Sodium hydroxide	CAS No. : 1310-73-2 EC No. : 215-185-5	< 1	C; R35	Skin Corr. 1A; H314	[1]
2,2'-(methylimino) diethanol**	CAS No. : 105-59-9 EC No. : 203-312-7	1 - 3	Xi; R36	Eye Irrit. 2, H319	[1]

** : Applicable to Black color only.

Occupational exposure limits, if available, are listed in Section 8.

For the full text of the R-phrases mentioned in this Section, see Section 16

For the full text of the H-Statements mentioned in this Section, see Section 16

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern

4. First aid measures

4.1) Description of first aid measures

Inhalation

Move exposed person to fresh air. Keep person warm and at rest.

If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

Get medical attention if symptoms occur.

If unconscious, place in recovery position and get medical attention

	immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Ingestion	Wash out mouth with water. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if symptoms occur. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin contact	Wash skin immediately with plenty of water and soap. Remove contaminated clothing and shoes. Get medical attention if irritation occurs. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

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

See Section 11 for more detailed information on health effects and symptoms

4.3) Indication of any immediate medicate medical attention and special treatment needed

See Section 11 for more detailed information on health effects and symptoms

5. Fire-Fighting measures

5.1) Extinguishing media

Suitable extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. In case of fire, use water spray (fog), foam, dry chemical or CO ₂ .
Unsuitable extinguishing media	None known
Conflagration	Following products may be produced during a fire: Oxides of carbon.

5.2) Specific hazards arising from the substance or mixture

Hazard from the substance or mixture	The product is not flammable.
Hazardous combustion product	No data

5.3) Advice for fire-fighters

Special precautions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
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

- 6.1) Personal precautions, protective equipment and emergency procedures** Wear suitable protective equipment.
Advice for non-emergency personnel : Do not breathe vapours, aerosols.
Evacuate the danger area, observe emergency procedures, consult an expert.
- 6.2) Environmental precautions** Avoid dispersal of spilt 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).
- 6.3) Methods and materials for containment and cleaning up**
- Little leakage** Pick up mechanically.
- Enormous leakage** Cover drains. Collect, bind, and pump off spill.
Observe possible material restrictions.
Dike far ahead of liquid spill for later disposal.
Cover powder spill with plastic sheet or tarp to minimize spreading.
Prevent entry into waterways, sewers, basements or confined areas.
- 6.4) Reference to other sections** See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information

7. Handling and storage

- 7.1) Precautions for safe handling** General (mechanical) room ventilation is expected to be satisfactory for use at room temperature.
Store and handle in accordance with the existing law and regulation.
Observe label precautions. Avoid ingestion and inhalation.
- 7.2) Conditions for safe storage, including any incompatibilities** Requirements for storage areas and containers;
Store in original container.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- 7.3) Specific end use(s)**
- Recommendations** Not available.
- Industrial sector specific solutions** Not available.

8. Exposure controls & personal protection

- 8.1) Control parameters**
- Exposure limits values** 1310-73-2 : STEL 2mg/m³
57-55-6 : TWA Aerosol 10mg/m³ (WEEL)
1302-78-9 : TWA 6mg/me (PEL_Total)
95-14-7 : TWA 10mg/m³ (ACGIH TLV total dust)
1310-73-1 : STEL 2mg/m³
- Recommended monitoring procedures** No data
- 8.2) Exposure controls**
- Risk management measures**
- Occupational exposure controls**

Technical measures

Apply technical measures to comply with the occupational exposure limits.
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.

Personal protective equipment**Respiratory protection**

Approved particulate respirators should be used where airborne concentrations are expected to exceed occupational exposure limits.

Eye protection

Wear protective gloves/ protective clothing/ eye protection/face protection.
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Hands protection

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

Skin protection

Wear general protective clothing to minimize skin contact.

Work clothes should not be taken home and should be washed daily.

Hygiene measures

Avoid contact with skin, eyes and clothing.

High standards of skin care and personal hygiene should be exercised at all times. Keep working clothes separately.

Wash hands before breaks and immediately after handling the product.

Contaminated work clothing should not be allowed out of the workplace.

Remove and wash contaminated clothing and gloves, including the inside, before re-use.

Ensure that eyewash stations and safety showers are close to the workstation location. When using do not eat, drink or smoke.

Environmental exposure controls**Technical measures**

The product should not be allowed to enter drains, water courses or the soil.

9. Physical and chemical properties**9.1) Appearance****physical state**

Liquid

color

Black, Blue, Red, Green, Violet, Lavender, Turquoise, Lime, Blueblack, Sky Blue, Brown, Orange, Pink, Yellow, Light Orange, Light Violet

9.2) Odor

Odorless

9.3) Odor threshold

Not determined

9.4) pH

No data

9.5) Melting point/freezing point

No data

9.6) Initial boiling point and boiling range

No data

9.7) Flashing point

No data

9.8) Evaporation rate

No data

9.9) Flammability (solid, gas)

No data

9.10) Upper/lower flammability or explosive limits	No data
9.11) Vapor pressure	No data
9.12) Water Solubility	No data
9.13) Vapor density	No data
9.14) Relative density	No data
9.14) Partition coefficient: n-octanol/water	No data
9.15) Auto-ignition temperature	No data
9.16) Decomposition temperature	No data
9.17) Viscosity	No data
9.18) Formula mass	No data

10. Stability and reactivity

10.1) Reactivity	None known.
10.2) Chemical stability	Stable under recommended storage conditions.
10.3) Possibility of hazardous reactions	Note: Stable under recommended storage conditions.
10.4) Conditions to avoid	None known.
10.5) Incompatible materials	None known.
10.6) Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

11.1) Information on toxicological effects

Acute toxic

Oral	No data
Dermal	105-59-9 : LD50 5,990mg/kg Rabbit
Inhalation	No data

Skin corrosive/irritant No data

Serious eye damage/eye irritation No data

Respiratory sensitization No data

Skin sensitization 105-59-9 : Not sensitizing Guinea pig
(OECD Guideline 406 ; GPMT according to MAGNUSSON-KLIGMAN)

Carcinogenicity 2634-33-5 : Short term tests and a consideration of the structure have shown that it is not likely to be a carcinogenic hazard to man.

Germ Cell Mutagenicity No data

Reproductive toxicity No data

Specific target organ toxicity (single exposure) No data

Specific target organ toxicity (repeated exposure) No data

Aspiration hazard	No data
Potential chronic health effects	105-59-9 : NOAEL 100mg/kg Rat (Dermal, 90days)

12. Ecological information

12.1) Aquatic and terrestrial ecotoxicity

fish	2634-33-5 : LC50 2.18mg/L 96hr <i>Oncorhynchus mykiss</i> (rainbow trout)/ OECD Test Guideline 203
daphnia and other aquatic invertebrate	2634-33-5 : EC50 2.94mg/L 48hr <i>Daphnia magna</i> (Water flea)/ OECD Test Guideline 202
aquatic plant (algae)	2634-33-5 : ErC50 0.11mg/L 72hr <i>Pseudokirchneriella subcapitata</i>

12.2) Persistence and degradability

Persistence	No data
Degradability	105-59-9 : >70 % 28 days ; Readily Biodegradability

12.3) Bioaccumulative potential

Concentration	2634-33-5 : Bioaccumulation is unlikely.
Biodegradability	2634-33-5 : Inherently biodegradable.

12.4) Mobility in soil

No data

12.5) Results of PBT and vPvB assessment

PBT	Not applicable.
vPvB	Not applicable.

12.6) Other adverse effects

No data

13. Disposal considerations

13.1) Disposal method

Product should be disposed of in accordance with the regulations issued by the appropriate federal, provincial, state, and local authorities.

13.2) Disposal precaution

Take into account the provisions set forth in the notice.

14. Transport information

	ADR/RID	ADN	IMDG	IATA
14.1) UN number	-	-	-	-
14.2) UN proper shipping name	-	-	-	-
14.3) Transport hazard class/Marks	-	-	-	-
14.4) Packing group	-	-	-	-
14.5) Environmental hazards	No	No	No	No
14.6) Special precautions for user/additional information	Not regulated.	Not regulated.	Not regulated.	Not regulated.

14.7) Special precaution which a user to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises

Emergency procedure at fire	Not classified
Emergency procedure at leakage	Not classified

15. Regulatory information

15.1) Safety, health and environmental regulations/legislation specific for the substance or mixture**EU Regulation (EC) No. 1907/2006 (REACH)****Annex XIV - List of substance subject to authorisation**

Annex XIV	None of the components are listed.
Substance of Very High Concern	None of the components are listed.
15.2) Chemical Safety Assessment	not applicable

16. Other information

Abbreviations and acronyms	CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008] STEL = Short Term Exposure Limit PBT = Persistent, Bioaccumulative and Toxic vPvB = Very Persistent and Very Bioaccumulative WEEL = Workplace Environmental Exposure Level
Abbreviated H statements	H319 Causes serious eye irritation. H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H400 Very toxic to aquatic life.
R-phrases	R36 Irritating to eyes. R34 Causes burns. R43 May cause sensitization by skin contact.
Information source and references	No data
History	
Date of Issue	2016-06-28
Version	1
Date of previous issue	2015-12-01
d) others	No data

*** Notice to Reader**

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet and its Annex [if required according to Regulation (EC) 1907/2006 (REACH)] is to describe the products in terms of their safety requirements. The given details do not imply any guarantee concerning the composition, properties or performance