1 Identification

· **Product identifier**
· **Trade name: Mach Green Ink**
· **Article number: 100000015204** LY-1.860.417
· **Relevant identified uses of the substance or mixture and uses advised against**
Currently no such applications are identified
· **Application of the substance / the mixture** Ball Pen Ink
· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
SUHAN CORPORATION
#43-5, Mookke-ri, Hoeng seong-eup, Hoeng seong-gun,
Kang won-do, 225-802, Korea
Phone +82-33-342-0601
Facsimile +82-33-342-0020
· **Information department:**
Regulation Management, Koh, Hyunjung (Manager) (Ms.)
Phone +82-33-342-0601
Facsimile +82-33-342-0020
E-Mail: hjkoh@suhancorp.co.kr
· **Emergency telephone number:**
24-hour-Emergency- Telephone-Number (GBK Contract ID: 94050): (001) 352 323 3500

2 Hazard(s) identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**

GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.

GHS09 Environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

· **Hazard pictograms**

GHS05 GHS07 GHS09

· **Signal word** Danger

· **Hazard-determining components of labelling:**
Oleoylsarcosinic acid
C. I. Solvent Blue 4 < 0,1% Michler's Ketone

· **Hazard statements**
H315 Causes skin irritation.
H318 Causes serious eye damage.
H317 May cause an allergic skin reaction.
H411 Toxic to aquatic life with long lasting effects.

· **Precautionary statements**
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P273 Avoid release to the environment.
P272 Contaminated work clothing should not be allowed out of the workplace.
P391 Collect spillage.
P302+P352 IF ON SKIN: Wash with plenty of water.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
Mixture of the following substances, containing non-hazardous substances and colouring agents.

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
CAS: 122-99-6 EINECS: 204-589-7	2-Phenoxyethanol Acute Tox. 4, H302; Eye Irrit. 2, H319	10-25%
CAS: 107-41-5 EINECS: 203-489-0	2-methylpentane-2,4-diol Skin Irrit. 2, H315; Eye Irrit. 2, H319	10-25%
CAS: 12227-67-7	C.I. Solvent Yellow 82 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	2,5-10%
CAS: 110-25-8 EINECS: 203-749-3	Oleoylsarcosinic acid Eye Dam. 1, H318; Aquatic Acute 1, H400; Acute Tox. 4, H332; Skin Irrit. 2, H315	2,5-10%
CAS: 6786-83-0 EINECS: 229-851-8	C. I. Solvent Blue 4 < 0,1% Michler's Ketone Eye Dam. 1, H318; Skin Sens. 1B, H317	≤2,5%

· **Additional information:** For the wording of the listed risk phrases refer to section 16.

4 First-aid measures

·**4.1 Description of first aid measures**
· **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
·**4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
·**4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

·**5.1 Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
·**5.2 Special hazards arising from the substance or mixture**
No further relevant information available.
·**5.3 Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

·**6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective clothing.
·**6.2 Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
·**6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
·**6.4 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

·**7.1 Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Information about fire - and explosion protection:** No special measures required.
·**7.2 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:** None.
·**7.3 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.
·**8.1 Control parameters**
·**Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
· **Additional information:** The lists valid during the making were used as basis.
·**8.2 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.
Avoid contact with the eyes and skin.
· **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device.
In case of intensive or longer exposure use self-contained respiratory protective device.
· **Protection of hands:**

Protective gloves

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
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **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

·**9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Fluid
Color:	According to product specification
· **Odor:**	Product specific

· **Odour threshold:**	Not determined.
· **Important information on protection of health and environment, and on safety.**	-
· **pH-value at 20 °C (68 °F):**	5,5
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	185 °C (365 °F)
· **Flash point:**	93 °C
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	260 °C
· **Decomposition temperature:**	Not determined.
· **Self-igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Not determined.
· **Explosion limits:**	
Lower:	1,0 Vol %
Upper:	12.6 Vol %
· **Vapor pressure at 20 °C (68 °F):**	0.1 hPa
· **Density at 20 °C (68 °F):**	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 at 20 °C (68 °F):	16000 mPas
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	51,9 %
Solids content:	43,6 %
· **Other information**	The physical and chemical properties given in Section 9.1 are rough data only, which are partially derived from the component's data of the mixture. These data are no binding product specifications.

10 Stability and reactivity

·**10.1 Reactivity** No further relevant information available.
·**10.2 Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
·**10.3 Possibility of hazardous reactions** No dangerous reactions known.
·**10.4 Conditions to avoid** No further relevant information available.
·**10.5 Incompatible materials:** No further relevant information available.
·**10.6 Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

·**11.1 Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

122-99-6 2-Phenoxyethanol		
Oral	LD50	2740 mg/kg (rat)
110-25-8 Oleoylsarcosinic acid		
Oral	LD50	> 9200 mg/kg (rat)

· **Primary irritant effect:**
· **Skin corrosion/irritation:** Causes skin irritation.
· **Serious eye damage/irritation:** Causes serious eye damage.
· **Respiratory or skin sensitisation:** May cause an allergic skin reaction.
· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.
· **STOT-single exposure** Based on available data, the classification criteria are not met.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.
· **Aspiration hazard** Based on available data, the classification criteria are not met.

12 Ecological information

·**12.1 Toxicity**

· **Aquatic toxicity:**	
107-41-5 2-methylpentane-2,4-diol	
LC50 / 96h	8,510 mg/l (Fish)
6786-83-0 C. I. Solvent Blue 4 < 0,1% Michler's Ketone	
EC50 / 48h	0,025 mg/l (Daphnie)

·**12.2 Persistence and degradability** No further relevant information available.
·**12.3 Bioaccumulative potential** No further relevant information available.
·**12.4 Mobility in soil** No further relevant information available.
· **Ecotoxical effects:**
· **Remark:** Toxic for fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
·**12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
·**12.6 Other adverse effects** No further relevant information available.

13 Disposal considerations

·**13.1 Waste treatment methods**
· **Recommendation:**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

European waste catalogue	
08 00 00	WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS
08 01 00	wastes from MFSU and removal of paint and varnish
08 01 13*	sludges from paint or varnish containing organic solvents or other

	dangerous substances

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **ADR, IMDG, IATA**	UN3082
· **14.2 UN proper shipping name**	
· **ADR**	3082 Environmentally hazardous substances, liquid, n.o.s. (metal complex dye, yellow, Oleoylsarcosinic acid)
· **IMDG**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (metal complex dye, yellow, Oleoylsarcosinic acid), MARINE POLLUTANT
· **IATA**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (metal complex dye, yellow, Oleoylsarcosinic acid)
· **14.3 Transport hazard class(es)**	
· **ADR**	
· **Class**	9 Miscellaneous dangerous substances and articles
· **Label**	9
· **IMDG, IATA**	
· **Class**	9 (M6) Miscellaneous dangerous substances and articles
· **Label**	9
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	III
· **14.5 Environmental hazards:**	Product contains environmentally hazardous substances: metal complex dye, yellow
· **Marine pollutant:**	Yes Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special marking (IATA):**	Symbol (fish and tree)
· **14.6 Special precautions for user**	Warning: Miscellaneous dangerous substances and articles
· **Danger code (Kemler):**	90
· **EMS Number:**	F-A, S-F

·14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· Transport category	3
· Tunnel restriction code	E
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN3082, Environmentally hazardous substances, liquid, n.o.s. (metal complex dye, yellow, Oleoylsarcosinic acid), 9, III

15 Regulatory information

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

· Directive 2012/18/EU

· Named dangerous substances - ANNEX I None of the ingredients is listed.

· National regulations:

· Technical instructions (air):

Class	Share in %
NK	50-100

· Water hazard class: Water hazard class 2 (Self-assessment): hazardous for water.

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

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.

·Relevant phrases

H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity, Hazard Category 4
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1
Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
Skin Sens. 1: Sensitisation - Skin, Hazard Category 1
Skin Sens. 1B: Sensitisation - Skin, Hazard Category 1B
Aquatic Acute 1: Hazardous to the aquatic environment - AcuteHazard, Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1
Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2

· *** Data compared to the previous version altered.**