1.CHEMICAL PRODUCT INFORMATION

Product Name	COILX5000 PCCL-0016-1N Z5781	Color	Z5781
Application	PCM Print Clear	8. Coatings and paints, thinners, paints removers 8.1 Oil paint	
Manufacture	SAMHWA PAINTS IND.CO.,LTD.	Telephone NO.	82-31- 499 - 0394
Address	178, Byeolmang-ro, Danwon-gu, Ansan-si, Gyeonggi-do, Korea	Department	

2. HAZARDS IDENTIFICATION

1.Classification of the substance

① FLAMMABLE LIQUIDS - category 3
② ASPIRATION HAZARD - category 1
③ SKIN CORROSION/IRRITATION - category 2(Skin irritant)
④ CARCINOGENICITY - category 1B
⑤ GERM CELL MUTAGENICITY - category 1B
⑥ SENSITIZATION - SKIN - category 1
⑦ ACUTE TOXICITY (ORAL) - category 2
⑧ ACUTE TOXICITY (INHALATION-VAPOR) - category 3
⑨ HAZARDOUS TO THE AQUATIC ENVIRONMENT(CHRONIC HAZARD) - chronic 2

2.GHS warning label elements, including precautionary statements

① Symbol :

② Signal word : Danger

③ Hazard statements : May cause an allergic skin reaction
Toxic if inhaled
Causes skin irritation
May cause cancer(state route of exposure if it is conclusively proven that no other routes of explosure cause the hazard)
Flammable liquid and vapor
May be fatal if swallowed and enters airways
Toxic to aquatic life with long lasting effects
Fatal if swallowed
May cause henetic defects(state route of exposure if it is conclusively proven that no other routes of explosure cause the hazard)

④ Precautionary statements :
Prevention- Wash…thoroughly after handling.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Do not handle until all safety precautions have been read and understood.
Contaminated work clothing should not be allowed out of the workplace.
Use explosion-proof[electrical/ventilating/lighting]equipment.
Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/…
Obtain special instructions before use.
Use only outdoors or in a wellventilated area.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
Keep container tightly closed.
Ground and bond container and receiving equipment
Use non-sparking tools.
Take precautionary measures against static discharge.
Do not eat, drink or smoke when using this product.

④ Precautionary statements :

Prevention- Avoid release to the environment.

Response- Do NOT induce vomiting.
Call a POISON CENTER or doctor/physician.
Take off contaminated clothing and wash it before reuse.
IF exposed or concerned: Get medical advice/attention.
If skin irritation occurs: Get medical advice/attention.
Specific treatment (see on this label).
IF ON SKIN(or hair) : Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].
IF ON SKIN : Wash with plenty of water/…
If skin irritation or rash occurs: Get medical advice/attention.
Collect spillage.
Rinse mouth.
IF INHALED : Remove person to fresh air and keep comfortable for breathing.
In case of fire: Use Suitable extinguishing media for extinction.(Refer Section MSDS 5)
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Storage- Srore in a well-ventilated place. KEEP cool.
Srore in a well-ventilated place. Keep container tightly closde.
Store locked up.

Disposal- Dispose of contents/container to ralate laws and regulations.

3.CHEMICAL COMPOSITION

Chemical Name	CAS NO.	Portion(%)	Remarks
Methylated 1,3,5-triazine-2,4,6-triamine, formaldehyde polymer	68002-20-0	More than 1 ~ Under 10 %	
Methanol	67-56-1	More than 0.1 ~ Under 1 %	
Solvent naphtha (petroleum), light arom.	64742-95-6	More than 21 ~ Under 30 %	
Solvent naphtha (petroleum), heavy arom.	64742-94-5	More than 1 ~ Under 10 %	
Trimethylolpropane-neopentyl glycol-1,6-hexanediol-phthalic anhydride-adipic acid copolymer	64385-79-1	More than 31 ~ Under 40 %	
Hexanedioic acid dimethyl ester	627-93-0	More than 1 ~ Under 10 %	
Decanedioic acid bis(1,2,2,6,6-pentamethyl-4-piperidinyl) ester	41556-26-7	More than 1 ~ Under 10 %	
Silicon dioxide	112926-00-8	More than 1 ~ Under 10 %	
Pentanedioic acid, dimethyl ester	1119-40-0	More than 1 ~ Under 10 %	
2-Butoxyethanol	111-76-2	More than 1 ~ Under 10 %	
Butanedioic acid dimethyl ester	106-65-0	More than 1 ~ Under 10 %	
Isobutylacrylate	106-63-8	More than 0.1 ~ Under 1 %	

4.HEALTH HAZARD INFORMATION

1. Eye contact
   Wash off immediately with plenty of water, also under the eyelids, for at least 20 minutes.
   Call a physician immediately.
2. Skin contact
   Remove the contaminated clothes and the skin will be washed with water and soap.
   Do not use solvents.
3. Inhalation
   Move to fresh air and if he/she not breathes perform artificial respiration.
   Consult a physician if necessary.
4. Ingestion
   Do not induce vomiting unless it is indicated by medical personnel.
   Never give anything by oral tract to an unconscious. Get medical attention if symptoms appear.
5. Note to physician
   Very small quantities of the product reached in lungs may be fatale. Ingestion of the product may cause chemical irritation that may diffuse to lungs and cause edema. Check carefully the victim and apply intubations in all ingestion cases for all important amounts.

5.FIRE FIGHTING MEASURES

1. Flash point : 55 ℃
2. Ignition temp : Not determined
3. Upper expolosion limit / Lower explosion limit : Not determined
4. The Fire Service Act : Fourth grade 2nd.Petroleum
5. Fire extinguisher : CO2, Powder, Halogen Fire extinguisher and Sand etc.
6. Fire and explosion Method of extinguishing and equipment:
   Wear suitable protective equipment Use product with caution around heat, sparks, pilot lights, static electricity, and open flame.
   Due to vapor is heavier than air, keep the distance from the ignition source pour into the fresh air.
   Remove promptly flammable material. Put out a fire at once with prepared fire extinguisher.
7. Hazardous materials in combustion:
   Could be generated complexed mixture like solid and gas containing CO, SO2 etc.
   Unidentified organic and inorganic compound.
8. Extinguishing method which must not used for safety : Not applicable

6.ACCIDENTAL RELEASE MEASURES

1. Personal precautions
   Evacuate useless personnel, isolate the heat and flame sources, ventilate and wet the area if is possible.
   All personnel must be protected against vapours inhalation and against skin and eyes contact.
2. Methods for cleaning up
   Absorb with dry earth, sand or other non-combustible material and precede according decontamination regulation.
   Recovered product will be stored in metallic drums with removable lid or metallic containers, which will be sent to incineration.
3. Environmental precautions
   Do not let the product to reach water, drain and earth. Prevent the extending in soil.
   Prevent entry into sewers, basements or confined areas; dike if needed

7.HANDLING AND STORAGE

1. Handling
   Avoid contact with skin or eyes. Use only up well-ventilated areas.
   Avoid breathing vapor. Do not take internally. Take precautionary measures against static is charges.
2. Storage
   The product must be kept in original container tightly closed. Store between 5~35℃ in dry, well-ventilated place away from source of heat, ignition and direct sunlight.
   Solvent vapours are heavier than air and spread along floors. Vapours may form explosive mixtures. No smoking.
3. Other precautions
   Emergency showers and eye wash stations should be readily accessible.
   Adhere to work practice rules established by government regulations

8.EXPOSURE CONTROLS/PERSONAL PROTECTION

1. Exposure limit values

Chemical Name	Cas No	Interior provision	ACGHI
Methylated 1,3,5-triazine-2,4,6-triamine, formaldehyde polymer	68002-20-0	No data	No data
Methanol	67-56-1	TWA : 200 ppm 260 mg/㎥ STEL : 250 ppm 310 mg/㎥	TWA 200 ppm
Solvent naphtha (petroleum), light arom.	64742-95-6	No data	No data
Solvent naphtha (petroleum), heavy arom.	64742-94-5	No data	No data
Trimethylolpropane-neopentyl glycol-1,6-hexanediol-phthalic anhydride-adipic acid copolymer	64385-79-1	No data	No data
Hexanedioic acid dimethyl ester	627-93-0	No data	No data
Decanedioic acid bis(1,2,2,6,6-pentamethyl-4-piperidinyl) ester	41556-26-7	No data	No data
Silicon dioxide	112926-00-8	TWA : 10 mg/㎥	No data
Pentanedioic acid, dimethyl ester	1119-40-0	No data	No data
2-Butoxyethanol	111-76-2	TWA : 20 ppm	TWA 20 ppm
Butanedioic acid dimethyl ester	106-65-0	No data	No data
Isobutylacrylate	106-63-8	No data	No data

2. Environmental exposure control
   Technical conditions regarding atmosphere protection. Determination of pollutants emission produced by stationary sources rules.
3. Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment
4. Eye protection: Wear eye/face protection such as chemical goggles or face shield
5. Hand protection: For prolonged or repeated contact use solvent protective gloves. Barrier reams may help to protec

the exposed areas of hand. However they should not be applied once exposure has occurred. Hand should be washed after contact

6. Skin protection: Personnel should wear protective clothing and antistatic footwear.
7. Additional: Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water

9.PHYSICAL AND CHEMICAL PROPERTIES

1. Appearance : colored and transparent liquid
2. Odor : solvent specific
3. pH : Not applicable
4. Solubility : Water-insoluble
5. Boiling point : No data
6. Melting point : No data
7. Explosive properties : No data
8. Oxidising properties : No data
9. Vapor pressure : No data
10. Specifice gravity : 1.054
11. Partition coefficient : No data
12. Vapor density : No data
13. Viscosity(25℃) : 100±15SEC
14. Molecular weight : No data

10.STABLITY AND REACTIVITY

1. Chemical stability
   The product is stable if is kept in original recipient and according with recommendation.
2. Condition to avoid
   Avoid all possible sources of heat, electrostatic discharges, ignition(spark or flame).
   Avoid storage at temperature higher than 35℃ and direct exposure in the sunlight.
3. Materials to avoid
   Strong oxidative substances, strong acid, and alkaline solutions may give exothermic reactions in contact with this product.
4. Hazardous decomposition products
   Thermo oxidative decomposition gives carbon monoxide, carbon dioxide, nitrogen oxides and a dense smoke, which contain other unidentified decomposition products. If this product is heated up to its decomposition temperature may lead to explosion.

11.TOXICOLOGICAL INFORMATION

1. Toxicity Information

Chemical Name	LD50.Oral	LD50.Skin	LD50.Inhlation (gas)	LD50.Inhlation (vapour)	LD50.Inhlation (mist)
Methylated 1,3,5-triazine-2,4,6-triamine, formaldehyde polymer	LD50 12.3 ㎖/kg Rat	No data	No data	No data	No data
Methanol	LD50 6200 mg/kg Rat	LD50 15800 mg/kg rabbit	해당없음	LC50 64000 ppm 4 hr Rat	해당없음
Solvent naphtha (petroleum), light arom.	LD50 = 8400 mg/kg Rat	LD50 > 2000 mg/kg Rabbit	NO DATA	LC50 = 5.160 mg/ℓ 4 hr Rat	NO DATA
Solvent naphtha (petroleum), heavy arom.	LD50 > 5000 mg/kg Rat	LD50 > 2000 mg/kg Rabbit	NO DATA	NO DATA	NO DATA
Trimethylolpropane-neopentyl glycol-1,6-hexanediol-phthalic anhydride-adipic acid copolymer	No data	No data	No data	No data	No data

11.TOXICOLOGICAL INFORMATION

1. Toxicity Information

Chemical Name	LD50.Oral	LD50.Skin	LD50.Inhlation (gas)	LD50.Inhlation (vapour)	LD50.Inhlation (mist)
Hexanedioic acid dimethyl ester	LD50 = 1920 mg/kg Rat	No data	No data	No data	No data
Decanedioic acid bis(1,2,2,6,6-pentamethyl-4-piperidinyl) ester	LD50 = 2369 mg/kg Rat	No data	No data	No data	No data
Silicon dioxide	LD50 = 3300 mg/kg (Species : not	LD50 = 5000 mg/kg	Steam LC50 > 2.0 mg/ℓ Rat	Steam LC50 > 2.0 mg/ℓ Rat	Steam LC50 > 2.0 mg/ℓ Rat
Pentanedioic acid, dimethyl ester	LD50 = 1920 mg/kg Rat	LD50 = 8500 mg/kg Rat	해당없음	자료없음	해당없음
2-Butoxyethanol	LD50 = 1414 mg/kg rat	LD50 >2000 mg/kg rat	NO DATA	NO DATA	NO DATA
Butanedioic acid dimethyl ester	LD50 > 5000 mg/kg Rat	LD50 > 5000 mg/kg Rabbit	No data	No data	No data
Isobutylacrylate	LD50 = 4895 mg/kg Rat	LD50 = 800 mg/kg Rabbit	Steam LC50 = 10.59 mg/ℓ 4 hr Rat	Steam LC50 = 10.59 mg/ℓ 4 hr Rat	Steam LC50 = 10.59 mg/ℓ 4 hr

12.ECOLOGICAL INFORMATION

1. Ecological Information

Chemical Name	LC50.fish	LC50.water fleas	LC50.algea
Methylated 1,3,5-triazine-2,4,6-triamine, formaldehyde polymer	No data	No data	No data
Methanol	LC50 15400 mg/ℓ 96 hr Lepomis	LD50 > 100 mg/ℓ 96 hr Daphnia magna	No data
Solvent naphtha (petroleum), light arom.	LC50 = 9.22 mg/ℓ 96 hr	EC50 = 6.14 mg/ℓ 48 hr Daphnia magna	EC50 = 19 mg/ℓ 72 hr
Solvent naphtha (petroleum), heavy arom.	LC50 = 45 mg/ℓ 96 hr Pimephales	EC50 = 0.95 mg/ℓ 48 hr Daphnia magna	EC50 = 2.5 mg/ℓ 72 hr
Trimethylolpropane-neopentyl glycol-1,6-hexanediol-phthalic anhydride-adipic acid copolymer	No data	No data	No data
Hexanedioic acid dimethyl ester	LC50 = 87.095 mg/ℓ 96 hr	No data	EC50 = 6.691 mg/ℓ 96 hr (No
Decanedioic acid bis(1,2,2,6,6-pentamethyl-4-piperidinyl) ester	LC50 = 0.97 mg/ℓ 96 hr Lepomis	EC50 = 20 mg/ℓ 24 hr	EC50 = 0.017 mg/ℓ 96 hr

12.ECOLOGICAL INFORMATION

1. Ecological Information

Chemical Name	LC50.fish	LC50.water fleas	LC50.algea
Silicon dioxide	No data	No data	No data
Pentanedioic acid, dimethyl ester	LC50 = 13400 mg/ℓ 96 hr	EC50 = 3940 ~ 4670 mg/ℓ 48 hr Daphnia	No data
2-Butoxyethanol	LC50 1474 mg/ℓ 96 hr	EC50 1800 mg/ℓ 48 hr Daphnia	EC50 911 mg/ℓ 72 hr
Butanedioic acid dimethyl ester	LC50 = 50 ~ 100 mg/ℓ 96 hr	LC50 = 3317.276 mg/ℓ 48 hr	EC50 = 11.917 mg/ℓ 96 hr
Isobutylacrylate	LC50 = 2.09 mg/ℓ 96 hr Pimephales	LC50 = 9.7 mg/ℓ 48 hr Daphnia magna	EC50 = 3.18 mg/ℓ 72 hr

2. Soil mobility : Not known
3. Persistence and degradability
   There is no specific data available on the product itself. The product should not be allowed to enter drains or watercourses or be deposited where they can affect ground or surface waters.
4. Potential bioaccumulation : Be possible.

13.DISPOSAL CONSIDERATION

1. Relevant insurance of legislation
   Dispose of in accordance with local regulations
2. Waste removal measures
   Waste must be disposed of in accordance with state and local environmental regulations.
3. Direction for the waste disposal
   Preferred options for disposal are recycling, incineration with energy recovery, and landfill.

14.TRANSPORT INFORMATION

1. Classification by shipping transportaiton dangerous substance and regulation of storage :
2. Direction for transport
   The product must be kept in original container tightly closed and transport at normal temperature.
3. International Martitie Dangerous Goods Code
   U.N Number : 1263
   Shipping name : PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquerbase) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
   Hazard class : 3
   Packing group : 3
4. Marine pollutant : Applicable
5. Special precautions for user related to transport or transportation measures
   - Ems FIRE SCHEDULE : F-E
   - EmS SPILLAGE SCHEDULE : S-E

15.REGULATORY INFORMATION

1. Article of KOREA OCCUPATIONAL SAFETY _HEALTY AGENCY : Not determined. Water-insoluble
2. Article of Harmful Chemical Substance : Methanol
3. Classify of The Fire Service Act : Fourth grade 2nd.Petroleum

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16.OTHER INFORMATION

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the data of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release is not to be considered a warranty or quality specification

The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

This information is based on technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.