JV POLYMERS
innovative coating

SILCOTE-HY90®
Material Safety Data Sheet

No.: JVTK2404-5	Original Date: JAN,2015	Revision Date: APR,2024	Page No.: 1 of 4

SECTION 1. CHEMICAL PRODUCT IDENTIFICATION

Product Name: SILCOTE-HY90® Part B

Use of the Component of a Polyurea System

Synonyms HY90 polyurea resin

Emergency Contact: +82-70-8688-3957

SECTION 2. COMPOSITION / INFORMATION OF HAZARDOUS INGREDIENT

Chemical Name	CAS NO.	Amount	OSHA TWA	ACGIH TWA
Polymethylene Glycole	25322-69-4	>60	None estab	None estab
Diethyltoluenediamine	68479-98-1	<25	None estab	None estab
Pigments	-	<10	None estab	None estab
Additives	-	<5	None estab	None estab

SECTION3. HEALTH HAZARD IDENTIFICATION

1) Eye Contact
May cause pain and extreme irritation.

2) Skin Contact
Prolonged or repeated exposure may cause skin irritation. May stain skin.
May cause allergic reaction in susceptible individuals.

3) Inhalation
At room temperature, vapors are minimal due to low vapor pressure. If heated or sprayed,
excessive concentration are attainable(if material is not reacted) that could be hazardous on single exposure.
Excessive exposure may cause irritation of the eyes, upper respiratory tract and lungs.

4) Ingestion
Harmful if swallowed.

5) Sings and Symptoms
Repeated and/or prolonged contact with the skin may cause allergic reaction/sensitization.

6) Aggravated Medical Conditions
Preexisting eye, skin and respiratory disorders may be aggravated by exposure to this product.
Preexisting skin or respiratory tract allergies may increase the chance of developing increased allergy symptoms from exposure to this product.

SECTION 4. FIRST AID MEASURES

General advice: Immediately remove contaminated clothing. If danger of loss of consciousness, place patient in recovery position and transport accordingly. Apply artificial respiration if necessary. First aid personnel should pay attention to their own safety.

If inhaled: Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin: Wash affected areas thoroughly with soap and water. Remove contaminated clothing. Wash soiled clothing. immediately. Immediate medical attention required. Do not reuse clothing until thoroughly decontaminated.

If in eyes: In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

If swallowed: Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Note to physician Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5. FIRE FIGHTING MEASURES

1) Flammable Properties

Flash point and Method : >200 °C (DIN 51758)

Autoignition temperature : Not determined.

Flammable Limits(% by volume) : Not determined.

2) Classification and Regulations for the Fire Service Law: Not applicable

3) Flammable Limits:

Lower : Not determined.

Upper : Not determined

4) Recommended fire extinguishing agents and special procedures:

Use water spray, dry chemical, foam, or carbon dioxide to extinguish flames. Use water spray to cool fire-exposed containers. The reaction Between water and hot isocyanate may be vigorous.

5) Products evolved when subjected to heat or combustion:

Isocyanate vapor and mist. Carbon dioxide, carbon monoxide nitrogen oxides and possible traces of Hydrogen cyanide..

6) Unusual or Explosive Hazards:

Smoke and oxides of carbon

7) Special Protective Equipment for Fire Fighters:

Fire Fighters should wear full protective clothing and a self-contained breathing positive pressure breathing apparatus.

SECTION 6. Accidental release measures

1) Personal precautions:

Wear appropriate respiratory protection. Use personal protective clothing. Ensure adequate ventilation.

2) Environmental precautions:

Avoid disposal of split material and runoff and contact with soil, waterways, drains and sewers.

3) Cleanup:

For small spills, 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.

For large spills, dyke split material or otherwise contain material to ensure runoff does not reach a waterway. Place split material in an appropriate container for disposal by a licensed contractor.

SECTION7. HANDLING AND STORAGE

A. Handling

1) General advice:

See MSDS section 10 - Stability and reactivity. See MSDS section 5 - Fire fighting measures.

2) Protection against fire and explosion:

See MSDS section 5 - Fire fighting measures.

No explosion proofing necessary. Prevent electrostatic charge accumulation.

B. Storage

1) General advice:

Containers should be stored tightly sealed in a dry place.

Avoid all sources of ignition: heat, sparks, open flame. Protect against moisture.

Keep container in a cool, well-ventilated area.

2) Storage incompatibility:

General: Segregate from acids and acid forming substances.

Segregate from foodstuffs. Store well away from other substances.

3) Storage stability:

Storage duration: 12 Months in the containers that is tightly sealed at 20~25℃

SECTION 8. EXPOSURE CONTROL / PERSONAL PROTECTION

1) Exposure limit values:

Not available.

2) Respiratory Protection:

Airborne concentrations should be kept to lowest levels possible. If vapor, mist or dust is generated and the occupational exposure limit of the product, or any component of the product, is exceed, use appropriate NIOSH or MSHA approved air purifying or air supplied respirator after determine the airborne concentration or the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown.

3) Ventilation:

Local exhaust ventilation recommended if generating vapor, dust or mist. If exhaust ventilation is not available or inadequate, use MSHA or NIOSH approved respirator as appropriate.

4) Environmental exposure control:

Emission from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, me scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

5) Eye/Face protection:

Avoid eye contract. Tightly fitting safety goggles (chemical goggles). Do not wear contact lenses. Wear face shield if splashing hazard exists.

6) Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to DIN-EN 465).

7) General safety and hygiene measures:

Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to prevent contact. Wear protective clothing as necessary to prevent contact. Avoid inhalation of vapours/mists. Soiled work clothing should be laundered or dry-cleaned immediately.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

1) Odor	**: Slight Ammoniacal**
2) Appearance	**: Colored liquid(Grey, Green, Blue, Black, Red, White, Orange etc)**
3) Molecular Formula	**: Mixture**
4) Boiling point	**: Not determined**
5) Freezing point	**: Not determined**
6) Vapor pressure	**: Not determined**
7) Specific Gravity	**: 1.00 ~ 1.10(water = 1)**
8) Viscosity(cps, 25 °C)	**: 400~1,500**
9) Water Solubility	**: Not determined**
10) Solvent Solubility	**: Soluble(glycol ethers, esters, alcohols, ketones, hydrocarbons)**
11) pH	**: Not determined**
12) Volatility	**: No**

SECTION 10. STABILITY AND REACTIVITY

1) Chemical Stability:

Sable under recommended storage conditions

2) Conditions and Materials to avoid:

Avoid extreme heat. Reactive or incompatible with the following materials: oxidizing materials, peroxides, metal, strong acids, alkalis

4) Hazardous decomposition products:

Will not occur

5) Hazardous Polymerization:

Carbon dioxide, nitrogen oxides. Traces of hydrogen cyanide.

SECTION 11. TOXICOLOGICAL INFORMATION

1) Acute Oral Effects : NO Data Available
2) Acute Inhalation Effects : NO Data Available
3) Subchronic Effects : NO Data Available
4) Chronic Effects : NO Data Available
5) Mutagenicity : NO Data Available
6) Genotoxicity : NO Data Available
7) Others : NO Data Available

SECTION 12. ENVIRONMENTAL INFORMATION

1)Ecological Information **:** NO Data Available

SECTION 13. DISPOSAL CONSIDERATIONS

1) Waste Disposal Methods
This product has been evaluated for RCRA characteristics and does not meet the criteria of a ,hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous.
2) Remarks :None

SECTION 14. TRANSPORT INFORMATION

Proper Shipping Name: Polyether Polyol
ADR: Non Dangerous Goods
IMDG: Non Dangerous Goods
IATA: Non Dangerous Goods

SECTION 15. REGULATORY INFORMATION

U.S Regulation
TSCA Inventory status: : Y
TSCA 12(b) Export Notification : : Not listed
CERCLA Section 103 (40 CFR 302.4) : : N
SARA Section 302 (40 CFR 355.30) : N
SARA Section 304 (40 CFR 355.40) : N
SARA Section 313 (40 CFR 372.65) : N
SARA Hazard Categories, SARA Section 311/312(40 CFR 370.21)
Acute : : Y
Chronic : : N
Fire : : N
Sudden Release : : N
OSHA Process Safety (29 CFR 1910.119): : N

State Regulations
California Proposition 65 : : N

European Regulations
EC Number : : Not assigned
EC Hazard & Safety Construction

R 20/21	S34		
S 2	S13	S 20	S 24/25/26
S 36/39	S46		

SECTION 16. OTHER INFORMATION

1) Aquatic toxicity
Not determined
2) Mobility
Not determined
3) Persistence and Biodegradability

Not determined

4) Potential to Bioaccumulate

Not determined

[END OF DATA SHEET]

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Material Safety Data Sheet

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SECTION 1. CHEMICAL PRODUCT IDENTIFICATION

Product Name: SILCOTE-HY90® Part A

Use of the Component of a Polyurea System

Synonyms HY90 polyurea Hardener

Emergency Contact: +82-70-8688-3957

SECTION 2. COMPOSITION / INFORMATION OF HAZARDOUS INGREDIENT

Chemical Name	CAS NO.	Amount	OSHA TWA	ACGIH TWA
Polymethylene Polyphenyl Isocyanate	26447-40-5	>60	None estab	None estab
MDI-Polypropylene Glycol copolymer	9048-57-1	>30	None estab	None estab
Additives	-	<1	None estab	None estab

SECTION3. HEALTH HAZARD IDENTIFICATION

1) Eye Contact
May cause pain and extreme irritation.

2) Skin Contact
Prolonged or repeated exposure may cause skin irritation. May stain skin.
May cause allergic reaction in susceptible individuals.

3) Inhalation
At room temperature, vapors are minimal due to low vapor pressure. If heated or sprayed, excessive concentration are attainable(if material is not reacted) that could be hazardous on single exposure.
Excessive exposure may cause irritation of the eyes, upper respiratory tract and lungs.

4) Ingestion
Single dose oral toxicity is low. The oral LD50 for rats is 5,000mg/kg.
No hazards anticipated from ingestion incidental to industrial exposure.

5) Sings and Symptoms
Repeated and/or prolonged contact with the skin may cause allergic reation/sensitization.

6) Aggravated Medical Conditions
Preexisting eye, skin and respiratory disorders may be aggravated by exposure to this product.
Preexisting skin or respiratory tract allergies may increase the chance of developing increased allergy symptoms from exposure to this product.

SECTION 4. FIRST AID MEASURES

General advice: Immediately remove contaminated clothing. If danger of loss of consciousness, place patient in recovery position and transport accordingly. Apply artificial respiration if necessary. First aid personnel should pay attention to their own safety.

If inhaled: Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin: Wash affected areas thoroughly with soap and water. Remove contaminated clothing. Wash soiled clothing. immediately. Immediate medical attention required. Do not reuse clothing until thoroughly decontaminated.

If in eyes: In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

If swallowed: Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Note to physician Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5. FIRE FIGHTING MEASURES

1) Flammable Properties

Flash point and Method : >200 °C (DIN 51758)

Autoignition temperature : Not determined.
Flammable Limits(% by volume) : Not determined.

2) Classification and Regulations for the Fire Service Law: Not applicable

3) Flammable Limits:

Lower : Not determined.
Upper : Not determined

4) Recommended fire extinguishing agents and special procedures:

Use water spray, dry chemical, foam, or carbon dioxide to extinguish flames. Use water spray to cool fire-exposed containers. The reaction Between water and hot isocyanate may be vigorous.

5) Products evolved when subjected to heat or combustion:

Isocyanate vapor and mist. Carbon dioxide, carbon monoxide nitrogen oxides and possible traces of Hydrogen cyanide..

6) Unusual or Explosive Hazards:

Smoke and oxides of carbon

7) Special Protective Equipment for Fire Fighters:

Fire Fighters should wear full protective clothing and a self-contained breathing positive pressure breathing apparatus.

SECTION 6. Accidental release measures

1) Personal precautions:

Wear appropriate respiratory protection. Use personal protective clothing. Ensure adequate ventilation.

2) Environmental precautions:

Avoid disposal of split material and runoff and contact with soil, waterways, drains and sewers.

3) Cleanup:

For small spills, 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.

For large spills, dyke split material or otherwise contain material to ensure runoff does not reach a waterway. Place split material in an appropriate container for disposal by a licensed contractor.

SECTION7. HANDLING AND STORAGE

A. Handling

1) General advice:

See MSDS section 10 - Stability and reactivity. See MSDS section 5 - Fire fighting measures.

2) Protection against fire and explosion:

See MSDS section 5 - Fire fighting measures.

No explosion proofing necessary. Prevent electrostatic charge accumulation.

B. Storage

1) General advice:

Containers should be stored tightly sealed in a dry place.

Avoid all sources of ignition: heat, sparks, open flame. Protect against moisture.

Keep container in a cool, well-ventilated area.

2) Storage incompatibility:

General: Segregate from acids and acid forming substances.

Segregate from foodstuffs. Store well away from other substances.

3) Storage stability:

Storage duration: 12 Months in the containers that is tightly sealed at 20~25℃

SECTION 8. EXPOSURE CONTROL / PERSONAL PROTECTION

1) Exposure limit values:

Not available.

2) Respiratory Protection:

Airborne concentrations should be kept to lowest levels possible. If vapor, mist or dust is generated and the occupational exposure limit of the product, or any component of the product, is exceed, use appropriate NIOSH or

MSHA approved air purifying or air supplied respirator after determine the airborne concentration or the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown.

3) Ventilation:

Local exhaust ventilation recommended if generating vapor, dust or mist. If exhaust ventilation is not available or inadequate, use MSHA or NIOSH approved respirator as appropriate.

4) Environmental exposure control:

Emission from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, me scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

5) Eye/Face protection:

Avoid eye contract. Tightly fitting safety goggles (chemical goggles). Do not wear contact lenses. Wear face shield if splashing hazard exists.

6) Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to DIN-EN 465).

7) General safety and hygiene measures:

Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to prevent contact. Wear protective clothing as necessary to prevent contact. Avoid inhalation of vapours/mists. Soiled work clothing should be laundered or dry-cleaned immediately.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

1) Appearance	: Light Yellow liquid
2) Odor	: Not available
3) Solubility in water	: Negligible(Less than 1%)
4) Boiling point	: Not available
5) Melting point	: Not available
6) Vapor pressure	: Not available
7) Specific Gravity(at 25°C)	: 1.05 ~ 1.15(water = 1)
8) Vapor density	: Not available
9) Volatility	: Low
10) Viscosity (cps, at 25 °C)	: 500~1,500
11) pH value(1% Solution)	: Not determined
12) Molecular Weight	: Mixture

SECTION 10. STABILITY AND REACTIVITY

1) Stability:

The product is stable under recommended storage conditions

2) Conditions to avoid:

Avoid extreme heat.

3) Substances to avoid:

Reactive or incompatible with the following materials: oxidizing materials, peroxides, metal, strong acids, alkalis

4) Hazardous decomposition products:

Isocyanate vapor and mist. Carbon dioxide, carbon monoxide, nitrogen oxides and poss. Traces of hydrogen cyanide.

5) Hazardous Polymerization:

May occur with incompatible reactants. Especially strong bases and water or temperature over 160℃. Reaction with water is gentle at room temperature. Over 49℃ accelerates reaction rate.

SECTION 11. TOXICOLOGICAL INFORMATION

1) Acute Oral Effects : NO Data Available
2) Acute Inhalation Effects : NO Data Available
3) Subchronic Effects : NO Data Available
4) Chronic Effects : NO Data Available
5) Mutagenicity : NO Data Available
6) Genotoxicity : NO Data Available
7) Others : NO Data Available

SECTION 12. ENVIRONMENTAL INFORMATION

1)Ecological Information **:** NO Data Available

SECTION 13. DISPOSAL CONSIDERATIONS

1) Waste Disposal Methods
This product has been evaluated for RCRA characteristics and does not meet the criteria of a ,hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous.
2) Remarks :None

SECTION 14. TRANSPORT INFORMATION

Proper Shipping Name: Isocyanate
ADR: Non Dangerous Goods
IMDG: Non Dangerous Goods
IATA: Non Dangerous Goods

SECTION 15. REGULATORY INFORMATION

U.S Regulation
TSCA Inventory status: : Y
TSCA 12(b) Export Notification : : Not listed
CERCLA Section 103 (40 CFR 302.4) : : N
SARA Section 302 (40 CFR 355.30) : N
SARA Section 304 (40 CFR 355.40) : N
SARA Section 313 (40 CFR 372.65) : N
SARA Hazard Categories, SARA Section 311/312(40 CFR 370.21)
Acute : : N
Chronic : : N
Fire : : N
Sudden Release : : N
OSHA Process Safety (29 CFR 1910.119): : N

State Regulations
California Proposition 65 : : N

European Regulations
EC Number : : Not assigned
EC Hazard & Safety Construction
R 20 R 36/37/38 R 42
S 2 R 26 S 28b S 38
S 45

SECTION 16. OTHER INFORMATION

1) Aquatic toxicity
Not determined
2) Mobility
Not determined

3) Persistence and Biodegradability
Not determined
4) Potential to Bioaccumulate
Not determined

[END OF DATA SHEET]