

SAFETY DATA SHEET


HCT Safety Data Sheet according to Globally Harmonized System of Classification and Labeling of Chemicals (GHS), fifth revised edition of the GHS, published in 2013.

Date/Revised: 06. 10. 2015

Version: 2.1

Products: Soluryl R-20

| 1. Chemical Product and Company Identification | |
|--|---|
| Product Name | Soluryl R-20 |
| Product Family | Styrene Acryl Emulsion |
| Recommended Use | Let down vehicle for flexographic ink |
| Supplier | Hanwha chemical Thailand Co., Ltd 377 Moo 17 Bangna-Trad Rd., Bangsaotong, Bangsaotong, Samutprakarn, 10540, TEL 66-2-315-3204~8 Seock Yong Shin, shin@hanwhath.com |
| Emergency Information | Joon Woo Ahn ahnjoonwoo@hanwhath.com , TEL 66-2-705-9681~4 (EXT. 103) |

| 2. Hazards Identification | |
|---------------------------|--|
| Symbol |  |
| Classification | Skin corrosion/irritation: Category 2 Serious eye damage/irritation: Category 2A |
| Signal Word | Warning |
| Hazard Statement | H315 Causes skin irritation H320 Causes eye irritation |
| Precautionary Statement | P264 Wash hands/skin thoroughly after handling P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P302 + P352 IF ON SKIN: Wash with plenty of soap and water. |

SAFETY DATA SHEET

| 3. Composition, Information on Ingredients | | |
|--|------------|-------|
| Component | CAS # | wt% |
| Styrene-Acrylate copolymer | 25153-46-2 | 35~55 |
| H ₂ O | 7732-18-5 | 55~65 |
| Ammonium Hydroxide | 1336-21-6 | 0~2 |

| 4. First Aid Measures | |
|-----------------------|---|
| Eye | Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists. |
| Skin | Immediately wash skin with plenty of soap and water for at least 15 minutes. Get medical attention if irritation develops or persists. Wash contaminated clothing and shoes before reuse. |
| Ingestion | Give 1~2 glasses of water to drink and get medical attention. |
| Inhalation | Remove to fresh air. Get medical attention If a cough or other respiratory irritation develop or persists. |
| Notes to Physician | Not necessary |

| 5. Fire Fighting Measures | |
|--------------------------------|---|
| Extinguishing Media | Dry powder, Carbon dioxide, Water spray |
| Unsuitable Extinguishing Media | High pressure water jet |
| Decomposition Hazardous Gases | Could be formed corrosive and irritant gases |
| Fire Fighting Instruction | Respirator, Wear self-contained breathing apparatus |

| 6. Accidental Release Measures | |
|--------------------------------|---|
| Personal Precautions | Wear eye, skin and respiratory protection during cleaning |
| Environmental Precautions | Not necessary |
| Methods for Clearing | Vacuum into a closed container or Sweep up mechanically |

| 7. Handling and Storage | |
|-------------------------|--|
|-------------------------|--|

SAFETY DATA SHEET

| | |
|----------|---|
| Handling | Avoid breathing vapors and fumes. Prevent skin and eye contact. Use in a well ventilated area and handling methods that minimize dust production. Avoid contact with eyes, skin and cloth. |
| Storage | Keep containers closed and upright to prevent leakage. Store in a cool, well ventilated area away from heat, sources of ignition, direct sunlight. Keep from Children. Keep away freezing. |

| 8. Exposure Controls & Personal Protection | |
|--|---|
| Exposure Limit | Polymer/Emulsion, Not applicable |
| Engineering Controls | Provide general clean air dilution or local exhaust ventilation in volume and pattern to prevent air contaminant concentration build-up |
| Protection | Eye: Wear safety glasses Skin: Wear appropriate protective gloves Respiratory: Avoid breathing vapors and fumes. If exposed to fumes, wear an appropriate, properly fitted respirator |

| 9. Physical & Chemical Properties | |
|-----------------------------------|----------------|
| Physical state | Liquid |
| Color | Translucent |
| Odor | Mild |
| pH | ~8.5 |
| Melting Point(°C) | 0°C |
| Boiling Point(°C) | 100°C |
| Flash Point(°C) | Not applicable |
| Evaporation Rate | Not applicable |
| Flammability | Not applicable |
| Explosive Limit | Not applicable |
| Vapor Pressure | <1 |
| Vapor Density | Not applicable |
| Relative Density(g/cc) | 0.8 ~ 1.2 |
| Bulk Density(g/cc) | Not applicable |
| Solubility | Not applicable |
| Partition Coefficient | Not applicable |

SAFETY DATA SHEET

| | |
|------------------------|----------------|
| Auto-ignition temp(°C) | Not applicable |
| Decomposition Temp(°C) | Not applicable |
| Viscosity(cps) | ~800 cps |
| Molecular weight | > 200,000 |

10. Stability & Reactivity

| | |
|-----------------------------------|--|
| Chemical Stability | Stable |
| Possibility of Hazardous Reaction | None under normal conditions |
| Conditions to avoid | Elevated temperature |
| Materials to avoid | Strong oxidizing materials, Freezing condition |
| Hazardous decomposition products | Carbon dioxides, Incomplete combustion can produce carbon monoxide. The material will not support combustion if the water has not evaporated. |

11. Toxicological Information

| | |
|---|------------|
| Information on the likely routes of exposure | None known |
| Symptoms related to the physical, chemical and toxicological characteristics | None known |
| Delayed and immediate effects and also chronic effects from short- and long-term exposure | None known |
| Numerical measures of toxicity | None known |

12. Ecological Information

| | |
|--|------------|
| Ecotoxicity (aquatic and terrestrial, where available) | None known |
| Persistence and degradability | None known |
| Bioaccumulative potential | None known |
| Mobility in soil | None known |
| Other adverse effects | None known |

13. Disposal Information

SAFETY DATA SHEET

Dispose of in accordance with local, state or national regulations.
Do not incinerate closed containers.
Incinerate in approved facility.

14. Transport Information

| | |
|--|----------------|
| UN number | Not Classified |
| UN Proper shipping name | Not applicable |
| Transport Hazard class | Not applicable |
| Packing group, if applicable | Not applicable |
| Marine pollutant | None Known |
| Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises | Not applicable |

15. Regulatory Information

Country and Inventory Status:

- TCSA Listed of USA:** Yes
- EINECS Listed of Europe:** Yes
- AICS Listed of Australia:** Yes
- ENCS Listed of Japan:** Yes
- IECSE Listed of China:** Yes
- DSL Listed of Canada:** Yes
- NZloC Listed of New Zealand:** Yes
- PICCS Listed of Philippines:** Yes
- EHS Listed of Malaysia:** Yes

SAFETY DATA SHEET

16. Other Reference

Date issued: 04.06.2015

Date revised: 06.10.2015

Revision No: 2.1

- This SDS has been issued by Hanwha Chemical Thailand Co., Ltd. complied with Globally Harmonized System of Classification and Labeling of Chemicals (GHS), fifth revised edition of the GHS, published in 2013.
- This SDS has been issued only to help the purchasers, agencies or the third parties who's needed to handle the material with safety, therefore, there should be no regal and technical responsibility if it applies to the special purpose and using with the other materials, commercial application or expression.
- The purchasers and agencies must have the responsibilities for the observance and compliance of the relevant regulations of each government because the specifications of this SDS cannot be available in accordance with the provisions of each nation or area.