

# MATERIAL SAFETY DATA SHEET

(GB/T 16483, GB/T 17519)

Product name: RC-M112S Ultra Fine Bright Silver

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## SECTION 1 Product and company identification

Product name: RC-M112S Ultra Fine Bright Silver

Manufacturer: YATU Advanced Materials Co., LTD.

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Product usage: Topcoat for automotive refinishing. Professional use only.

## SECTION 2 Hazards identification

### Emergency Outline:

Viscous flammable liquid and vapor with slight odor. Its vapor forms explosive mixtures when meets air. May cause combustion and explosion when meets with open flames and high heat. Easy to generate and accumulate static electricity. Fast flow velocity. It may cause eye, nose and throat irritation. May cause central nervous system depression if inhaled.

### GHS hazards categories:

|                                                  |             |                                                        |
|--------------------------------------------------|-------------|--------------------------------------------------------|
| Flammable liquids                                | Category 3  | H226-flammable liquid and vapor                        |
| Acute toxicity (skin)                            | Category 4  | H312-harmful in contact with skin                      |
| Acute toxicity (inhalation)                      | Category 4  | H332-harmful if inhaled                                |
| Skin irritation                                  | Category 2  | H315-causes skin irritation                            |
| Eye irritation                                   | Category 2A | H319-causes serious eye irritation                     |
| Reproduction toxicity                            | Category 2  | H361-suspected injury to fertility or fetus            |
| Specific target organ toxicity (single exposure) | Category 3  | H336-may cause drowsiness or dizziness                 |
| Acute hazard to the aquatic environment          | Category 3  | H402-very toxic to aquatic life                        |
| Long-term aquatic hazard                         | Category 3  | H412-harmful to aquatic life with long lasting effects |

### Label elements:

Hazard pictograms:



**Signal word:** Warning

**Precautionary statements:**

**Prevention:**

|           |                                                                                                            |
|-----------|------------------------------------------------------------------------------------------------------------|
| P210      | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Use non-sparking tools. |
| P233      | Keep container tightly closed.                                                                             |
| P240      | Ground and bond container and receiving equipment.                                                         |
| P241      | Use explosive-proof [electrical/ventilating/lighting...] equipment.                                        |
| P242      | Use non-sparking tools                                                                                     |
| P243      | Take action to prevent static discharges.                                                                  |
| P280      | Wear protective glove/protective clothing/eye protection/face protection                                   |
| P271      | Use only outdoors or in a well-ventilated area.                                                            |
| P264+P265 | Wash hands thoroughly after handling. Avoid contact with eyes.                                             |
| P203      | Read and follow all Safety Data Sheets before use.                                                         |
| P261      | Avoid breathing dust/fume/gas/mist/vapor/spray.                                                            |
| P273      | Avoid release to the environment.                                                                          |

**Response to accidents:**

|                 |                                                                                                                                 |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------|
| P303+P361+ P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water                                     |
| P370+P378       | Use dry powder, foam or carbon dioxide to extinguish.                                                                           |
| P302+P352 +P317 | IF ON SKIN: Wash with plenty of water. Get medical attention.                                                                   |
| P321            | Specific treatment                                                                                                              |
| P362+P364       | Take off contaminated clothing and wash it before reuse                                                                         |
| P304+P340+P317  | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical attention                                |
| P332+P317       | If skin irritation occurs: Get medical attention                                                                                |
| P305+P351+P338  | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. |
| P337+P317       | If eye irritation persists: Get medical attention.                                                                              |
| P318            | If exposed or concerned, get medical attention                                                                                  |
| P319            | If you feel unwell, get medical attention                                                                                       |

**Safe storage:**

|                |                                                                           |
|----------------|---------------------------------------------------------------------------|
| P403+P235+P233 | Store in a well-ventilated place.Keep cool.Keep container tightly closed. |
| P405           | Store locked up.                                                          |

**Disposal:**

|      |                                     |
|------|-------------------------------------|
| P501 | Dispose of contents/container to... |
|------|-------------------------------------|

**Physical and chemical hazards:**

Flammable liquid and vapor.

**Health hazards:**

It is hazardous if inhaled or on skin. It causes skin irritation and severe eye irritation, and it may cause respiration tract irritation.

**Environmental hazards:**

It is hazardous to aquatic life with long lasting effects.

**SECTION 3 Composition/information on ingredients****Substance /mixture: mixture**

product ingredient

| Chemical Name               | %     | CAS Number | GHS |
|-----------------------------|-------|------------|-----|
| n-Butyl acetate             | 30-40 | 123-86-4   | ✓   |
| Xylene                      | 10-25 | 1330-20-7  | ✓   |
| PMA                         | 5-15  | 108-65-6   | ✓   |
| n-Butyl alcohol             | 2-8   | 71-36-3    | ✓   |
| Ethyl acetate               | <2    | 141-78-6   | ✓   |
| Solvent naphtha (petroleum) | <2    | 64742-95-6 | ✓   |
| Resin                       | 20-30 | N/A        |     |
| Pigment                     | 4-12  | N/A        |     |

**SECTION 4 First aid measures****Description of first aid measures:**

**Inhalation:** Remove to fresh air. Keep person warm and at rest in a position comfortable for breathing.

**Skin contact:** Take off immediately all contaminated clothing. Rinse skin thoroughly with soap water. If irritation gets worse (redness, rash, blister), get medical attention immediately.

**Eye contact:** Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart. Seek immediate medical advice.

**Protection of first-aiders:** The rescuer should wear an appropriate mask or self-contained breathing apparatus before enter accident scene.

**Notes to physician:** The harmful ingredients are displayed in section 3 and 11.

**SECTION 5 Firefighting measures****Extinguishing media:**

Use dry chemical, sand, foam or CO<sub>2</sub> extinguishers. Do not use water jet directly.

**Special hazards:**

Flammable liquid and vapor. Its vapor forms explosive mixtures when meets air. May cause combustion and explosion when meets with open flames and high heat. Fast flow velocity. Easy to generate and accumulate static electricity.

**Special firefighting procedure and advice for protection:**

Remove and process liquids from fire area in case of environment pollution. Fire-fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) and stand on upwind area for firefighting.

**SECTION 6 Accidental release measures****Personal precautions, protective equipment and emergency procedures:**

Be stored in well-ventilated place and keep away from ignition sources.

Ensure all devices are grounded while they are working.

Emergency responders should wear full protective clothing and self-contained breathing apparatus during clean-up.

Follow the safety regulations.

**Environmental precaution:**

Avoid discharge into drains and water pipes. Inform the relevant authorities if there are pollutions entering into the rivers, lakes or waterways.

**Methods and material for containment and cleaning up:**

Small spills: Absorb with activated carbon or other inert material or wash out with lotion made by incombustible dispersant. After diluting, place it in an appropriate waste disposal container.

Large spills: Dike the spilled material and confine the sewers, where this is possible. Cover with foam to prevent evaporation. Collect and transfer spillage with explosive-proof pump, and place in tank trucks or containers for later recycle or disposal.

**SECTION 7 Handling and storage****Precautions for safe handling:**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

The operator should wear antistatic clothing and shoes and put on rubber oil-resistant gloves.

Workplace should be partial or comprehensive ventilated.

Use explosion-proof ventilation and equipment.

Filling speed should be controlled.

Grounding device is needed to prevent static accumulation.

Loading and unloading should be careful in order to prevent the damage of package and container.

Avoid contact with eyes, skin. Do not breathe mist or vapor.

Eating, drinking and smoking are prohibited in areas where this material is handled, stored and processed.

**Conditions for safe storage, including any compatibility:**

Store in a cool and well-ventilated warehouse.

Keep away from heat, direct sunlight or any source of ignition. Storage temperature: 0-35°C. Stored in a tightly closed container. Separate from oxidizing materials.

Use explosive lightning and ventilation devices with the switch outside the warehouse. Equipped with corresponding firefighting equipment with certain quality and quantity.

Barrel stacking should not be too large because it must keep a certain distance with wall, ceiling, column and fire inspection walkway.

Use only non-sparking tools and devices.

The storage area should be provided with a leak emergency operation device and appropriate containers.

**SECTION 8 Exposure controls/personal protection****Occupational exposure limits:**

| Ingredient Name  | Maximum Allowable Concentration                                                           | Standard                               |
|------------------|-------------------------------------------------------------------------------------------|----------------------------------------|
| Xylene           | PC-STEL: 100mg/m <sup>3</sup> ; PC-TWA: 50mg/m <sup>3</sup><br>STEL: 150ppm; TWA: 100ppm  | GBZ 2.1 OEL (China)<br>ACGIH TLV (USA) |
| n-Butyl acetate  | PC-STEL: 300mg/m <sup>3</sup> ; PC-TWA: 200mg/m <sup>3</sup><br>STEL: 200ppm; TWA: 150ppm | GBZ 2.1 OEL (China)<br>ACGIH TLV (USA) |
| PMA              | STEL: 150ppm; TWA: 100ppm                                                                 | ACGIH TLV (USA)                        |
| n-Butyl alcohol: | PC-TWA: 100mg/m <sup>3</sup><br>STEL: 50ppm; TWA: 100ppm                                  | GBZ 2.1 OEL (China)<br>ACGIH TLV (USA) |
| Ethyl acetate    | PC-STEL: 300mg/m <sup>3</sup> ; PC-TWA: 200mg/m <sup>3</sup><br>STEL: 400ppm; TWA: 400ppm | GBZ 2.1 OEL (China)<br>ACGIH TLV (USA) |

**Methods of monitoring:**

Method for determination of toxic substances in the air of workplace: Solvent Analysis-gas chromatography in GBZ/T 160.42, thermal desorption-gas chromatography, non-pump sampling -gas chromatography.

**Engineering controls:**

As flammable liquid separated workplace is needed. The operation should be done in a closed place, in order to prevent vapor leaking in the air. Promote ventilation and maintain the airborne concentrations below the occupation exposure limits. Set up automatic alarm and accidental ventilation equipment. Emergency exits and risk-elimination areas are necessary. Set up communication alarm system. Red zone warning line, warning signs and Chinese warning instructions are needed.

**Personal protective equipment:**

**Respiration protection:** If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable), a self-absorption filter mask (half mask) must be worn. When emergency rescue or evacuation occurs, workers should wear air respirator or oxygen breathing apparatus.

**Eye protection:** Wear safety goggles with side shields.

**Skin/body protection:** Wear appropriate chemical resistant clothing.

**Hand protection:** Wear rubber oil-resistant gloves.

**SECTION 9 Physical and chemical properties****Appearance and character:**liquid

Boiling point (°C): N/A

Flash point (°C): >23, <60 (closed cup)

Upper/lower flammability or explosive limits:

Flammability limit – lower (%): N/A

Flammability limit – upper (%): N/A

Viscosity (-4 Cup. second, 23°C): N/A

VOC (g/L):<6.4lb/gal

Solubility: Hardly soluble in water

**SECTION 10 Stability and reactivity**

**Stability:** The product is stable.

**Possibility of hazardous reactions:** No dangerous reaction known under conditions of normal use.

**Conditions to avoid:** Avoid static electricity, high heat, open flames.

**Incompatible materials:** Strong acids, strong oxidizing agents, and strong alkali.

**Hazardous decomposition products:** No hazardous decomposition products are known under the condition of normal use.

**SECTION 11 Toxicological information****Acute toxicity:**

| Ingredient Name                | Result                | Species | Dose                    | Exposure |
|--------------------------------|-----------------------|---------|-------------------------|----------|
| Xylene                         | LD50 Oral             | Rat     | 4300mg/kg               | -        |
| n-Butyl acetate                | LC50 Vapor Inhalation | Rat     | 390ppm                  | 4h       |
|                                | LD50 Dermal           | Rabbit  | > 17600mg/kg            | -        |
|                                | LD50 Oral             | Rat     | 10768mg/kg              | -        |
| PMA                            | LD50 Dermal           | Rabbit  | >5000mg/kg              | -        |
|                                | LD50 Oral             | Rat     | 8532mg/kg               | -        |
| n-Butyl alcohol                | LC50 Inhalation vapor | Rat     | 24240mg/kg              | 4 hours  |
|                                | LD50 Oral             | Rat     | 4346mg/kg               | -        |
|                                | LD50 Dermal           | Rabbit  | 3400mg/kg               | -        |
| Ethyl acetate                  | LC50 Inhalation vapor | Rat     | 5760mg/kg               | 8hours   |
|                                | LD50 Oral             | Rabbit  | 4940mg/kg               | -        |
|                                | LD50 Oral             | Rat     | 5620mg/kg               | -        |
| Solvent naphtha<br>(petroleum) | LD50 Oral             | Rat     | 67000mg/kg              | -        |
|                                | LC50 Vapor Inhalation | Rat     | 300000mg/m <sup>3</sup> | -        |

**Irritation/corrosion:**

| Ingredient Name                | Exposure Pathway | Result            | Species | Dose/Time | Observation |
|--------------------------------|------------------|-------------------|---------|-----------|-------------|
| Xylene                         | Eye              | Mild irritant     | Rabbit  | 87mg      | -           |
|                                | Eye              | Severe irritant   | Rabbit  | 5mg/24h   | -           |
|                                | Skin             | Mild irritant     | Rat     | 60μL/8h   | -           |
|                                | Skin             | Moderate irritant | Rabbit  | 500mg/24h | -           |
|                                | Skin             | Moderate irritant | Rabbit  | 100%      | -           |
| n-Butyl acetate                | Eye              | Moderate irritant | Rabbit  | 100mg     | -           |
|                                | Skin             | Moderate irritant | Rabbit  | 500mg/24h | -           |
| n-Butyl alcohol                | Eye              | Severe irritant   | Rabbit  | 2mg       | -           |
|                                | Skin             | Moderate irritant | Rabbit  | 405mg/24h | -           |
| Solvent naphtha<br>(petroleum) | Eye              | Mild irritant     | Rabbit  | 100μL/24h | -           |

**Reproductive toxicity:**

**Xylene:** Rat inhaled a minimum toxic concentration (TDL<sub>0</sub>) of 200ppm/6h (4-20 days of gestation), which resulting in impact on neonatal behavior and skeletal dysplasia.

**n-Butyl acetate:** Rat inhaled a minimum toxic concentration (TCL<sub>0</sub>) of 1500ppm/7h (7-16 days of gestation), which resulting in fetal toxicity and skeletal dysplasia.

**n-Butyl alcohol:** Rat inhaled a minimum toxic concentration (TDL<sub>0</sub>) of 8000ppm/7h (1-19 days of gestation), which resulting in abnormal musculoskeletal development..

**Specific target organ toxicity – single exposure:**

**n-Butyl acetate:** it affects central nervous system and may cause drowsiness or dizziness.

**n-Butyl alcohol:** it affects respiratory irritation and may cause drowsiness or dizziness.

**Specific target organ toxicity – repeated exposure:**

N/A.

**Aspiration hazards:**

May cause nasal and throat irritation. It may cause neurasthenia. The typical symptoms are: headache, drowsiness, nausea, teetering, confusion of consciousness, and unconsciousness.

**Ingestion hazard:** It may cause gastrointestinal discomfort.

**Contact hazards:**

It may cause eye irritation or burns, even skin irritation with repeated or long-term contact. Discomfort and dermatitis may occur as well.

**SECTION 12 Ecological information**

**Ecological toxicity:**

| Ingredient Name | Result                           | Species                        | Exposure |
|-----------------|----------------------------------|--------------------------------|----------|
| Xylene          | Acute LC50 8500µg/L seawater     | Crustacean- Palaemonetes pugio | 48hours  |
|                 | Acute LC50 13400µg/L freshwater  | Fish- Pimephales promelas      | 96hours  |
| n-Butyl acetate | Acute LC50 32000µg/L seawater    | Crustacean- Artemiasalina      | 48hours  |
|                 | Acute LC50 62000µg/L             | Fish- Daniorerio               | 96hours  |
| n-Butyl alcohol | Acute EC50 1328mg/L              | Daphnia -Daphnia magna         | 48 hours |
|                 | Acute LC50 1376mg/L freshwater   | Fish-Pimephales promelas       | 96 hours |
|                 | Chronic NOEC 4100µg/L freshwater | Daphnia -Daphnia magna         | 21 days  |
| Ethyl acetate   | Acute LC50 230mg/L freshwater    | Fish-Pimephales promelas       | 96 hours |
|                 | Acute EC50 717mg/L freshwater    | Daphnia -Daphnia magna         | 48 hours |

**Persistence and degradability:** Not available

**Bioaccumulative potential:** Not available

**Mobility in soil:** Not available

**SECTION 13 Disposal considerations**

**Chemical waste treatment methods:**

Recommend the treatment method of transferring waste into energy if possible. Incineration or landfill should only be considered when recycling is not feasible. Discharging the product into the sewage is prohibited.

**Contaminated package treatment methods:**

Empty containers should be taken to an approved waste handling site for recycling or disposal. If not, disposal should be in accordance with applicable regional laws and regulations.

**Notes for disposal:**

The applicable regional, national regulations should be read before disposal.

**SECTION 14 Transport information**

**UN number:** UN 1263

**UN proper shipping name:** Paint related material

**Transport hazard class (es):** 3

**Danger Pictograms:**



**Packing group:** III

**Package label:** Flammable liquid

**Marine pollutant substances:** Not applicable

**International shipping regulations:**

**United States Department of transportation:** 49CFR rating: 3 (flammable liquid and vapor).

**Marine, IMDG rating:** 3 (flammable liquid and vapor).

**Shipping, IATA rating:** 3 (flammable liquid and vapor).

**Notes for transport:**

The transportation vehicles shall be equipped with corresponding firefighting equipment and emergency treatment devices.

All transporting trucks should have grounded devices.

It cannot be transported with oxidant and food chemicals.

Transportation should prevent insolation, rain, and high temperature. Morning and evening transport are recommended.

Stay away from fire, heat, high temperature zone when stopover.

The vehicle exhaust pipe must be equipped with a fire-retardant device and use only non-sparking machines and tools for loading and unloading.

Drivers should follow the driven routes. Do not stay in residential areas and densely populated areas. Do not use wooden, cement ships for bulk transportation because it will pollute the ocean if it leaks.

**SECTION 15 Regulatory information****Applicable laws and regulations:**

Safe Production Law of the People's Republic of China

Code of Occupational Disease Prevention of PRC

Environmental Protection Law of the People's Republic of China

Laws of the People's Republic of China on the Prevention and Control of Atmospheric Pollution

Marine Environment Protection Law of the People's Republic of China

Law of the People's Republic of China on the prevention and control of environmental pollution by solid wastes

Fire Control Law of the People's Republic of China

Regulations on the Control over Safety of Dangerous chemicals

Occupational Exposure Limits for Hazardous Agents in the Workplace (part 1: chemical hazardous agents) (GBZ 2.1)

Occupational Exposure Limits for Hazardous Agents in the Workplace (part 2: Physical Agents) (GBZ 2.2)

General Rules for Chemical Classification and Risk Disclosure (GB 13690)

National Hazardous Waste List

General Rules for Storage of Dangerous Chemicals (GB 15603)

List of Dangerous Goods (GB 12268)

Classification and Code of Dangerous Goods (GB 6944)

Labels for Packages of Dangerous Goods (GB 190)

## SECTION 16 Other information

### Key to abbreviations:

MAC --Maximum Allowable Concentration: refers to the concentration of toxic chemicals that should not exceed at any time during a working day in the workplace.

PC-TWA -- Permissible Concentration-Time Weighted Average: refers to the average level of allowable contact in the stated working day of 8 hours.

PC-STEL ---Permissible Concentration- Short Term Exposure Limit: refer to the time weighted average for any allowable contact less than 15 minutes within 8 hours.

ACGIH TWA--- American Conference of Governmental Industrial Hygienists- Time weighted average

ACGIH STEL--- American Conference of Governmental Industrial Hygienists- Short Term Exposure Limit

LD<sub>50</sub>: It refers to lethal dose with oral and dermal exposure. In statistics, it is expected to cause 50% individual deaths in a group of subjects.

LC<sub>50</sub>: It refers to lethal concentration with respiration inhalation. In statistics, it is expected to cause 50% individual deaths in a group of subjects.

EC<sub>50</sub>: It refers to the concentration that can cause the 50% of maximal effect.

### References:

1. Zhou Guotai, *Hazardous chemicals safety technology*, Chemical Industry Press, 1997.
2. State Environmental Protection Administration of toxic chemicals management & the Beijing Institute of chemical research, *Handbook of Environmental Data for Environmental Regulations*, China Environmental Science Press, 1992.
3. Cheng nenglin, *Solvent Handbook*, Chemical Industry Press, 1994.
4. Canadian Centre for Occupational Health and Safety. CHEMINFO Database, 1989.

### Disclaimer:

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products, and to recommend precautionary measures for the storage and handling of the products. The users should have their own ideas about the practical appliance of this MSDS. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the product.

