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43301-XXXX

ULANO
SAFETY DATA SHEET
(According to ANSI Z400.1-2004)

PRODUCT NAME: STA-SHARP Adhering fluid: VOC free
Version: Original
Date Prepared: February 4, 2014

1. IDENTIFICATION OF PRODUCT AND COMPANY

Product Name: STA-SHARP Adhering fluid: VOC free
(Abbreviated for MSDS: S3S Fluid)
Company: ULANO® CORPORATION
110 Third Avenue
Brooklyn, NY 11217
Phone: 718-237-4700
Fax: 718-802-1119
Emergency contact: 1-800-424-9300 (CHEMTREC)

MSDS prepared by: P. Drago
Recommended use: Solvent blend for film adhesion to screen fabric for screen printing

2. HAZARD IDENTIFICATION OF THE PREPARATION

Classification

Physical Hazards: Flammable liquid – Category 2
Health Hazards: None.
Environmental Hazards: None.

Labeling

Signal Word: Danger
Hazard Statements: Highly flammable liquid and vapor. [H225]
Symbols/Pictograms:



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2. HAZARD IDENTIFICATION OF THE PREPARATION: CONTINUED

Precautionary Statements:

PREVENTION: Keep away from heat/sparks/open flames/hot surfaces. No smoking. [P210]
Keep container tightly closed. [P233]
Ground/bond container and receiving equipment. [P240]
Use explosion-proof electrical/ventilating/lighting equipment. [P241]

Use only non-sparking tools. [P242]
Take precautionary measures against static discharge. [P243]

Wear protective gloves, protective clothing, eye protection, and face protection. [P280]

RESPONSE: IF ON SKIN (or hair): Remove all contaminated clothing.
Rinse skin with water/shower. [P303+P361+P353]
In case of fire: Use dry chemical, foam, carbon dioxide, water spray/fog to extinguish. [P370 + P378]

STORAGE: Store in a well-ventilated place. Keep cool. [P403+P235]

DISPOSAL: Dispose of contents/container in accordance with local/regional/national regulations. [P501]

Other Classification and Labeling Information:

Hazards Not Otherwise Classified: None.
Unknown Acute Toxicity: None.

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3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Synonyms	CAS #	Concentration
Dimethyl Carbonate	Methyl Carbonate	616-38-6	50-80%
Methanol	n/a	67-56-1	1-10%

4. FIRST AID MEASURES

Inhalation:

If small amounts of this product are inhaled, specific treatment is generally not expected to be necessary. If exposed to excessive levels, if contact is prolonged, or if exposure causes adverse symptoms, move person to fresh air and seek medical attention.

Ingestion:

DO NOT INDUCE VOMITING. Never give anything by mouth to an unconscious person. Get medical attention. Dilute by giving 1 or 2 glasses of milk or water. If breathing is irregular or has stopped, apply artificial respiration. Aspiration into lungs can produce severe lung damage and is a medical emergency.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention if irritation develops. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact: Immediately flush eyes with plenty of water for at least 20 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

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5. FIRE-FIGHTING MEASURES

Flash point: 63 °F (17° C)

Flammable Limits: No applicable information available.

Autoignition Temperature: 856 °F (458 °C)

Explosion Data: No applicable information available.

Suitable Extinguishing Media: Use dry chemical, foam, carbon dioxide, water spray/fog when fighting fires involving this product. For large fires, alcohol resistant foams are preferred. This substance is partially water-soluble and therefore the use of water during firefighting is expected to be relatively effective. Water will dilute the compound, without the formation of an appreciable surface slick, and is not expected to spread flaming.

Special Protective Equipment and Precautions for Fire Fighters:

Wear a self-contained breathing apparatus pressure demand (NIOSH approved or equivalent) and full protective gear. Toxic vapors may evolve. Fight fires from a safe distance or protected areas. Fire hoses with fog nozzles may be used for controlling fires but care must be exercised not to spread flaming. Use of large volumes of water may produce run-off that is expected to be toxic to aquatic life and/or pose a hazardous waste disposal problem. Water may not be as effective for large fires.

Specific Hazards Arising from Chemical or Mixture:

This product, including its vapors, is highly flammable. Sealed containers can explode in the heat of fire. Vapors may travel to ignition source. Run off may create an explosion, fire, and environmental hazard.

Hazardous Combustion Products:

Thermal decomposition may generate toxic vapors.

Other Information:

See Section 7 for further information.

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6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

In case of spill, evacuate the area and remove all ignition sources. Do not expose to heat, flames, or ignition sources during any spill cleanup activities. Wear appropriate personal protective equipment during any cleanup and response activities as described in Section 8

Methods and Materials for Containment and Clean Up:

Dike and contain spill with vermiculite or other absorbent materials such as polyethylene fiber, polypropylene fiber products, clay-based absorbents, or sand.

Other Instructions: Do not release of this product or waste streams containing this product to water or the environment. In the event of an uncontrolled release of this material, the user should determine if the release is reportable under applicable laws and regulations.

7. HANDLING AND STORAGE

Precautions for Safe Handling and Storage:

This product, including its vapors, is highly flammable. Keep away from heat, sparks, open flames, and hot surfaces. No smoking. Keep container tightly closed. Ground or bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves, protective clothing, eye protection, and face protection.

S3S fluid is partially water soluble and may be used in water-borne systems. However, it has been shown to undergo hydrolysis to methanol and CO₂ over time (~8% over 120 hours). Therefore, aqueous systems containing S3S fluid should not be allowed to sit for extended periods of time due to the buildup of methanol and CO₂. (Residual water in organic solvent systems is not expected to be affected by this issue.)

Other Precautions and Information:

During operations at room temperature, evaporation of the material will occur due to the high vapor pressure of the product resulting in worker exposure and a flammability risk.

Do not drop. Keep away from fire, heat, open flames, lights, and ignition sources. Wear goggles and gloves when handling. Avoid breathing vapors. Eye-wash stations and emergency showers need to exist in areas where the material is handled, especially areas where loading and unloading operations

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7. HANDLING AND STORAGE: CONTINUED

occur. Wash hands thoroughly after handling and before eating, drinking, or smoking. Keep out of reach of children. Ground all containers when transferring material.

Do not contaminate water, food, or feed by storage or disposal. Keep the product in original containers. Store in cool, dry, well ventilated, low fire risk area away from sunlight. Keep containers closed. Store only in approved containers, under approved conditions. Avoid pressure build-up in containers. An automatic water spray device should be immediately available. A spill control and containment plan should be developed. Storage area should not be subject to rapid temperature changes as such changes may cause increased internal pressure. Isolate from toxic materials or substances that may release corrosive, toxic, or flammable fumes on reaction.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Eye/Face Protection: Chemical safety goggles meeting the specifications of ANSI Standard Z87.1 are to be worn whenever there is the possibility of contact with the eyes. Spectacle type safety glasses do not provide satisfactory protection. An eyewash fountain should be readily accessible. Wear plastic face shield in addition to safety goggles where there is a danger of splashing.

Protective Gloves: Wear chemical resistant gloves appropriate to the conditions to prevent dermal exposure. Glove material comparisons indicate that gloves made butyl rubber are anticipated to afford adequate hand protection. (Gloves made of nitrile, neoprene, or PVC are not expected to provide adequate hand protection.) Rinse and remove gloves immediately after use, and wash hands thoroughly with soap and water. Gloves should be removed and replaced immediately if there are any signs of degradation or breakthrough.

Protective Clothing: Wear chemical resistant protective clothing and footwear impervious to the product for the duration of the anticipated exposure if there is a potential for skin contact. An emergency shower should be readily accessible. Discard any contaminated clothing.

Respiratory Protection: Wear adequate respiratory protection in the case where there is a potential for inhalation exposure during use or handling operations. Respirators equipped with organic vapor cartridges are anticipated to provide adequate respiratory protection

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8. EXPOSURE CONTROLS AND PERSONAL PROTECTION: CONTINUED

during exposures to low vapor concentrations of the product. Cartridge life must be continually monitored, and cartridges must be replaced at the end of their useful life. Workers should wear a supplied-air respirator or self-contained breathing apparatus any time exposure is above low levels. Use NIOSH approved respiratory equipment. Respirators should be selected based on the form and concentration of the contaminant in the air and in accordance with OSHA (29 CFR 1910.134). Handle only in the presence of adequate ventilation.

Engineering Controls: Good general ventilation should be sufficient to control low airborne levels of the product. If the product is present above low levels, local exhaust or other measures may be necessary to control worker exposure. Engineering controls should be used during indoor operations where vapors will evolve or be released.

Air Monitoring: No applicable information available.

Exposure Limits and Guidelines

Component	OSHA PEL	ACGIH TLV	NIOSH REL	OTHER
Dimethyl carbonate	NE	NE	NE	100ppm TWA
methanol	200 ppm TWA	200 ppm TWA 250 ppm STEL (skin)	200 ppm TWA 250 ppm STEL (skin)	NE
Water	NE	NE	NE	NE

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Physical State:	Clear colorless liquid
Odor:	Pleasant odor
Odor Threshold:	No applicable information available
pH:	6.4 - 6.8
Melting Point/Freezing Point:	2 - 4 °C
Boiling Point:	90 °C (760 mm Hg)
Flash Point:	63 °F (17 °C) [closed cup]
Evaporation Rate:	3.22 (butyl acetate = 1.0)
Flammability:	No applicable information available
Flammability Limits:	No applicable information available
Vapor Pressure:	42 mm Hg (20 °C) 55 mm Hg (25 °C)
Vapor Density:	No applicable information available
Relative Density/Specific Gravity:	1.0710 (20 °C/4 °C)
Solubility in Water:	13.9 g/100 g water
Octanol/Water Partition Coefficient:	0.35 (20 °C)
Autoignition Temperature:	458 °C
Decomposition Temperature:	No applicable information available
Viscosity:	0.625 cps (20 °C)
Volatile:	100%

Notes on Physical and Chemical Properties None.

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10. STABILITY AND REACTIVITY

Reactivity:	There are no specific reactivity hazards.
Chemical Stability:	Stable under normal conditions
Possibility of Hazardous Reactions:	Hazardous reactions are not expected under normal conditions.
Conditions to Avoid:	Avoid heat, fire, open flames, direct light ignition sources, and UV radiation.
Incompatible Materials:	Incompatible with oxidizing and reducing agents.
Hazardous Decomposition Products:	Hazardous decomposition or byproducts are not expected under normal conditions.
Hazardous Polymerization:	Hazardous polymerization will not occur.
Other Information:	See Section 7 for further information.

11. TOXICOLOGICAL INFORMATION:

Routes of Exposure:	Exposure to S3S fluid (including its vapors) may occur through the eyes, skin, ingestion, and inhalation.
Acute Toxicological Data:	Acute oral LD50: 12,900 mg/kg (rat) Acute oral LD50: 6,000 mg/kg (mouse) Acute dermal LD50: > 2,500 mg/kg (rat) Acute dermal LD50: 5,000 mg/kg (rabbit) Acute Inhalation LC50: > 140 mg/l (rat) Acute IP LD50: 800 - 1,600 mg/kg (mouse)
Other Acute Toxicological Data:	Other acute studies have been conducted on S3S fluid. Rats exposed to up to 5,000 mg/kg showed clinical signs of hypoactivity, ataxia, redness around the eyes and nose, and loss of righting reflex. Duration of exposure was not reported. Separately, the primary expected metabolite of this compound is expected to be methanol. Methanol has been shown to be poorly tolerated in man with over exposure resulting in serious effects including central nervous system effects, blindness, and possibly death.

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11. TOXICOLOGICAL INFORMATION: CONTINUED

- Eye Irritation Data:** In a rabbit eye irritation study, S3S FLUID was found to be slightly irritating.
- Skin Irritation/Sensitization / Absorption Data:** In a rabbit skin irritation study, S3S FLUID did not cause skin irritation. In the Freund's complete adjuvant test, the substance did not produce skin sensitization.
- Subchronic Toxicity Data:** This compound was evaluated in a 13-week oral toxicity study in male and female rats at doses of 0, 5, 50 or 500 mg/kg/day. There were no deaths throughout the course of the study. Clinical observations (symptomatology, body weight, food intake, and ophthalmoscopic examination), laboratory investigations (hematology, blood chemistry, and urinalysis), and post-mortem examinations (organ weight, gross pathology, and histology) did not show any changes attributable to the test article in rats of any group. The compound was well tolerated up to and including the high dose level. The NOEL was found to be 500 mg/kg/day for both sexes.
- Reproductive Toxicity Data:** In a one-generation reproductive toxicity study conducted in male and female rats at doses of 0, 5, 50, or 500 mg/kg/day, S3S FLUID did not induce negative effects on male or female rats or on the development or behavior of the offspring. On the basis of these results, 500 mg/kg/day was considered the NOEL.
- Teratogenicity (birth defects) Data:** Pregnant female mice were exposed by inhalation to 0, 300, 1000, or 3000 ppm during gestational days (GD) 6 through 15. Maternal body weights, clinical observations, and food consumption were recorded throughout gestation. At scheduled euthanization on GD 18, fetuses were weighed, sexed, and examined for external, visceral, and skeletal alterations. There were no treatment-related deaths or clinical findings. Maternal body weights and body weight gains were significantly reduced at 3000 ppm. Food consumption was also significantly reduced in the 1000 and 3000 ppm groups. Gestational parameters affected at 3000 ppm included post-implantation loss due to increased

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11. TOXICOLOGICAL INFORMATION: CONTINUED

resorptions and altered sex ratio (decreased males). Fetal body weights per litter were reduced at 3000 ppm, with increased number of stunted fetuses. Total incidences of fetal malformations (external, visceral, and skeletal) were significantly increased at 3000 ppm and included cleft palate, microtia, low set ears, multiple skull bone malformations, and fused vertebral arches. There was also a treatment-related increase in skeletal variations at 3000 ppm. The NOEL for maternal and developmental toxicity was 1,000 ppm.

Results from the above teratology testing of S3S FLUID are similar to and consistent with those reported for methanol since S3S FLUID is expected to rapidly metabolize to methanol. The NOEL for methanol in teratology testing has been reported to be approximately 1000 ppm.

Mutagenicity:

None Reported

Chronic/Carcinogenicity Data:

There are no chronic effects or carcinogenicity data on S3S FLUID.

NTP: Not listed

IARC: Not listed

OSHA: Not listed

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12. ECOLOGICAL INFORMATION

Ecotoxicity Data:

Acute fish LC50 (Danio rerio)
96-hr: > 100 mg/l

Acute invertebrates EC50 (Daphnia magna)
24-hr: 83 mg/l
48-hr: 74 mg/l

Algae (Selenastrum capricornutum)
72-hr EbC50: 72 mg/l
72-hr ErC50: 72 mg/l
72-hr NOEC: 57 mg/l

Bacteria (Activated sludge)
3-hr EC50: > 1,000 mg/l
3-hr EC20: 92 mg/l
3-hr NOEC: 10 mg/l

Other Ecotoxicity Data: In a 21-day chronic invertebrates study in Daphnia magna, the EC50 and NOEC were reported to be greater than 100 mg/l and 25 mg/l, respectively.

Persistence and Degradability:

Under OECD 301C, S3S FLUID underwent 79% degradation after 10 days and 86% after 28 days and was considered readily biodegradable under the conditions of the test.

Hydrolysis testing indicates that the substance does not readily hydrolyze in water. At pH levels of 4, 7, and 9, hydrolysis was 8.3%, 7.3%, and 6.3%, respectively.

Bioaccumulative Potential: The measured log Kow is 0.35 (20 °C). Based on these data, this substance is not expected to bioaccumulate.

Mobility in Soil: No applicable information available.

Other Adverse Effects: No applicable information available.

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13. WASTE DISPOSAL INFORMATION

Waste Classification:

If discarded in its manufactured form, this product is expected to be a hazardous waste under RCRA. It is the responsibility of the user to determine at the time of disposal whether a material containing the product or derived from the product should be classified as a solid or hazardous waste.

U.S. EPA Waste Number:

D001

Special Instructions:

Dispose as a hazardous waste in conformance with all federal, state, and local regulations. All recovered material must be packaged, labeled, transported, and disposed in conformance with applicable laws and regulations.

Do not release this product or waste streams containing this product to water or the environment. Incinerate the wastes in an approved facility which complies with local, state, and federal regulations. For disposing of the container, completely empty the container. Rinse empty container with water and dispose of the container in an appropriate landfill or by incineration.

14. TRANSPORT INFORMATION:

U.S. DOT**UN Number:** 1161**Hazard Class:** 3**Packing Group:** II**Proper Shipping Name:** Dimethyl carbonate**Label:** Flammable liquid**Marine Pollutant:** No**IMDG/IMO****UN Number:** 1161**Hazard Class:** 3**Packing Group:** II

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Proper Shipping Name: Dimethyl carbonate
 Label: Flammable liquid
 Marine Pollutant: No

ICAO/IATA

UN Number: 1161
 Hazard Class: 3
 Packing Group: II

Proper Shipping Name: Dimethyl carbonate
 Label: Flammable liquid
 Marine Pollutant: No

15. REGULATORY INFORMATION

TSCA Inventory Status: All chemical substances contained within this product either are listed on the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory or subject to an applicable exemption under TSCA.

International Chemical Inventory Status:

<u>COUNTRY</u>	<u>INVENTORY</u>	<u>LISTED</u>	<u>NOT LISTED</u>	<u>NOTES</u>
Australia	AICS	✓		
Canada	DSL	✓		
	NDSL		✓	
China	IECSC	✓		
European Union	REACH	✓		List of registered Substances (210-478-4)
Japan	ENCS	✓		2-2853
New Zealand	NZIoC	✓		HSNO Approval
Phillipines	PICCS	✓		
South Korea	ECL	✓		KE-11278
U.S	TSCA	✓		

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15. REGULATORY INFORMATION : CONTINUED

OSHA:	This product is considered to be hazardous under the OSHA Hazard Communication Standard.
Waste Classification:	If discarded in its manufactured form, this product is expected to be a hazardous waste under RCRA. It is the responsibility of the user to determine at the time of disposal whether a material containing the product or derived from the product should be classified as a solid or hazardous waste.
EPCRA/SARA III:	This product contains no toxic chemicals at or above the de-minimis threshold subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372.
California Proposition 65:	This product contains methanol [CAS RN 67-56-1], a substance known to the State of California to cause developmental toxicity. The maximum level of methanol in this product is 1,000 ppm. This information is provided to assist users of this product that conduct business in California in discharging any warning obligations that that person may have under California Proposition 65.
Clean Air Act:	<p>Under the Clean Air Act, S3S FLUID is no longer regulated by the U.S. Environmental Protection Agency as a volatile organic compound (VOC) for purposes of meeting the national ambient air quality standard for ozone.</p> <p>S3S FLUID has been exempted as a VOC or can be used as VOC-exempt in all states except California. Most air districts in California have exempted S3S FLUID for industrial use except SCAQMD (Los Angeles Basin) and BAAQMD (San Francisco Bay regional area). S3S FLUID cannot be used for consumer products as this term is defined by CARB in the State of California. S3S FLUID can be used in entire U.S. for aerosol coatings using its very low MIR value of 0.06 for the weighted reactivity calculation. Canada has just initiated the VOC exemption process on S3S FLUID; currently, S3S FLUID is not VOC exempt in Canada.</p>

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	S3S FLUID	Methyl Acetate	Ethane	Acetone
Grams Ozone / gram VOC	0.056	0.068	0.27	0.35
Grams Ozone/mole VOC	5.045	5.037	8.12	20.33

16. OTHER INFORMATION

For further information please refer to our technical information sheet. Data in this MSDS correspond with our current level of knowledge, but do not represent any assurance of product properties. The user personally is responsible for compliance with all legal requirements.

DISCLAIMER OF RESPONSIBILITY:

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Editors notes: ENGLISH ONLY: do not translate this section.

DOC.	VERSION	REV	ON	note
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