Material Safety Data Sheet (MSDS)

Date of Issue: January 5, 2012
Supersedes: N/A
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Section 1: Product and Company Information

Product Name: **AURA® 8102 Screen Ink, Red**

Product Description: Ink

Manufacturer: Aura Optical Systems, L.P.
7415 Whitehall, Suite 111
Fort Worth, Texas 76118
USA

Telephone: +1 (801) 668-3439

Section 2: Hazards Identification

Appearance: Liquid

Hazards Overview: May cause skin and eye irritation. May cause drowsiness and dizziness. Contains a chemical or chemicals which may cause birth defects or other reproductive harm.

Flammable Properties: Combustible liquid and vapor. Closed containers exposed to heat may build pressure and explode.

Eyes: Moderate eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin: Causes skin irritation. Prolonged skin contact may defat the skin and produce dermatitis. May be absorbed through the skin in harmful amounts.

Inhalation: May cause irritation of respiratory tract. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Ingestion: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Target Organ Effects: Central Nervous System (CNS) Depression. May cause blood disorders based upon animal data. May cause liver or kidney damage. Contains a chemical or chemicals which may cause birth defects or other reproductive harm.

Carcinogenicity Contains a chemical or chemicals which may cause cancer

Component	CAS-No	Class Description	Agency
Ethylbenzene	100-41-4	Grp 2B: Possible Human Carcinogen	IARC
Ethylbenzene	100-41-4	A3: Animal Carcinogen	ACGIH

Section 3: Composition / Information on Ingredients

Component	CAS-No	Weight %
Cyclohexanone	108-94-1	20 – 40%
Acrylic Polymer(s)	Not Hazardous	15 – 35%
Ethylene Glycol n-Butyl Ether Acetate	112-07-2	15 – 30%
n-Methyl Pyrrolidone	872-50-4	5 – 15%
Vinyl Copolymer(s)	Not Hazardous	3 – 15%
Organic Pigment(s)	Not Hazardous	1 – 10%
Benzyl 3-isobutyryloxy-1-isopropyl-2,2-dimethylpropyl phthalate	16883-83-3	1 – 10%
Dimethyl Glutarate	1119-40-0	1 – 10%
Methyl Isobutyl Ketone	108-10-1	< 0.5%
Naphtha, Petroleum Solvent	64742-95-6	< 0.5%
Isobutanol	78-83-1	<0.3%
Xylene	1330-20-7	<0.1%
Ethylbenzene	100-41-4	<0.1%

Section 4: First Aid Measures

Eye Contact: Flush eyes with large amounts of water. If signs/symptom persist, get medical attention immediately.

Skin Contact: Wash off immediately with soap and plenty of water. Rinse immediately with plenty of water for at least 15 minutes. Remove contaminated clothing. If irritation develops, get medical attention.

Inhalation: Remove person to fresh air. If breathing is irregular or stopped, administer artificial respiration. Get medical attention immediately.

If Swallowed: DO NOT induce vomiting. Call a physician or poison control center. Never give anything to mouth to an unconscious person. Get medical attention immediately.

Section 5: Fire-Fighting Measures

Flammable Properties:	Autoignition Temperature:	No Data Available
	Flash Point:	111°F (44°C) [Test Method: Closed Cup]
	Flammable Limits (LEL):	No Data Available
	Flammable Limits (UEL):	No Data Available
	OSHA Flammability Classification:	Class II Combustible Liquid

Extinguishing Media: Carbon dioxide, dry chemical, foam

Protective Equipment and Precautions for Fire Fighters: Wear self-contained breathing apparatus (SCBA) and full protective gear. Keep away from fire, sparks, and heated surfaces. Water may not effective extinguish fire, but may be used to keep containers cool. Vapors are heavier than air and danger of flashback exists. Fire or intense heat may cause violent rupture of packages.

Specific Hazards Arising from the Chemical: Thermal decomposition can lead to the release of irritating gases and vapors. Burning produces obnoxious and toxic fumes.

Section 6: Accidental Release Measures

Personal Precautions: Remove all ignition sources such as flames, smoking materials, and electrical spark sources. Use only non-sparking tools . Avoid breathing dust or vapor. Avoid contact with skin, eyes and clothing. Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Ventilate the area with fresh air. Remember, adding an absorbent material does not remove a toxic, corrosivity or flammability hazard.

Methods for Cleaning Up: Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations. Do not use sparking tools. Seal the container.

Environmental Precautions: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. In the event of release of this material, the user should determine in the release qualifies as reportable according to local, state, and federal regulations.

Section 7: Handling and Storage

Handling: Do not eat, drink or smoke when using this product. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Wash exposed areas thoroughly with soap and water. Keep away from heat, sparks, open flame, pilot lights and other sources of ignition. Ground containers securely when transferring contents. Wear low static or properly grounded shoes. Avoid breathing of vapors, mists or spray. For industrial or professional use only.

Storage: Keep containers tightly closed in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep out of the reach of children. Keep away from heat and sources of ignition.

Section 8: Exposure Controls / Personal Protection

Engineering Controls: Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below exposure limits. If ventilation is not adequate, use respiratory protection equipment.

Personal Protection Equipment (PPE):

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits, use a NIOSH approved air-purifying respirator with organic vapor cartridges. The respirator should be selected based upon the results of an exposure assessment. Consult health and safety professional or manufacturer for specific information.

Eye / Face Protection: Wear safety glasses with side shields (or goggles)

Skin Protection: Wear protective gloves/clothing. Solvent-resistant apron and boots.

General Hygiene Considerations: Handle in accordance with good industrial hygiene and safety practice. Ensure that eyewash stations and safety showers are close to the workstation location. Wash hands before eating, drinking, or smoking. Remove and wash contaminated clothing before re-use. Regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing. Wear suitable gloves and eye/face protection.

Exposure Guidelines:

Component	ACGIH TLV	OSHA PEL
Cyclohexanone	TWA: 25 ppm (skin) STEL: 50 ppm	TWA: 25 ppm TWA: 100 mg/m^3
Ethylene Glycol n-Butyl Ether Acetate	TWA: 20 ppm	
Methyl Isobutyl Ketone	TWA: 20 ppm STEL: 75 ppm	TWA: 100 ppm TWA: 410 mg/m^3
Isobutanol	TWA: 50 ppm	TWA: 50 ppm TWA: 150 mg/m^3
Xylene	TWA: 100 ppm STEL: 150 ppm	TWA: 100 ppm TWA: 435 mg/m^3 STEL: 150 ppm STEL: 655 mg/m^3
Ethyl Benzene	TWA: 100 ppm STEL: 125 ppm	TWA: 100 ppm TWA: 435 mg/m^3 STEL: 125 ppm STEL: 545 mg/m^3

Section 9: Physical and Chemical Properties

Physical Form:	Liquid	**Autoignition Temperature:**	No Data Available
Color:	Red	**Flash Point:**	111°F (44°C) [Test Method: Closed Cup]
Odor:	Sweet Ether-like odor	**Flammable Limits (LEL):**	No Data Available
Density:	8.8 Lbs/gal	**Flammable Limits (UEL):**	No Data Available
VOC by % Weight:	60 – 70%	**Boiling Point:**	> 265°F (130°C)
VOC by Weight/Gallon:	5.3 – 6.2 Lbs	**Freezing Point:**	No Data Available
Viscosity:	No Data Available	**Vapor Density:**	Heavier than air
Evaporation Rate:	No Date Available	**Vapor Pressure:**	No Data Available

Section 10: Stability and Reactivity

Chemical Stability: Do not eat, drink or smoke when using this product. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Wash exposed areas thoroughly with soap and water. Keep away from heat, sparks, open flame, pilot lights and other sources of ignition. Ground containers securely when transferring contents. Wear low static or properly grounded shoes. Avoid breathing of vapors, mists or spray. For industrial or professional use only.

Conditions to Avoid: Keep containers tightly closed in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep out of the reach of children. Keep away from heat and sources of ignition.

Incompatible Products: Strong acids. Strong bases. Strong oxidizing agents. Reducing agents.

Hazardous Decomposition Products: Thermal decomposition can lead to the release of irritating gases and vapors. Carbon dioxide. Carbon monoxide. Nitrogen oxides.

Hazardous Polymerization: None under normal processing.

Section 11: Toxicological Information

Immediate (Acute) Toxicity:

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cyclohexanone	1,400 mg/kg (mouse)	948 mg/kg (rabbit)	8,000 ppm/4h (rat)
Ethylene Glycol n-Butyl Ether Acetate	2,400 mg/kg (rat)	1,485 mg/kg (rabbit)	> 450 ppm/6h (rat)
n-Methyl Pyrrolidone	3,914 mg/kg (rat)	4,000 – 8,000 mg/kg (rabbit)	No data available

Benzyl 3-isobutyryloxy-1-isopropyl-2,2-dimethylpropyl phthalate	> 15,800 mg/kg (rat)	> 10,000 mg/kg (rabbit)	No data available
Dimethyl Glutarate	> 5,000 mg/kg (rat)	> 5,000 mg/kg (rabbit)	No data available
Methyl Isobutyl Ketone	2,080 mg/kg (rat)	1,600 mg/kg (rabbit)	100 mg/m^3 (rat)
Naphtha, Petroleum Solvent	> 4,000 mg/kg (rat)	> 3,480 mg/kg (rabbit)	3,670 ppm/4h (rat)
Isobutanol	2,500 mg/kg (rat)	2,460 mg/kg (rabbit)	> 8,000 ppm/4h (rat)
Xylene	3,523 mg/kg (rat)	1,700 mg/kg (rabbit)	5,000 ppm/4h (rat)
Ethylbenzene	3,500 mg/kg (rat)	5,510 mg/kg (rabbit)	No data available

Delayed (Chronic and Subchronic) Toxicity:

Carcinogenicity: Contains a chemical or chemicals which may cause cancer

Component	CAS-No	Class Description	Agency
Ethylbenzene	100-41-4	Grp 2B: Possible Human Carcinogen	IARC
Ethylbenzene	100-41-4	A3: Animal Carcinogen	ACGIH

Sensitisation: No information available.

Mutagenic Effects: No information available.

Reproductive Effects: Contains a chemical or chemicals (n-Methyl Pyrrolidone) which may cause birth defects or other reproductive harm.

Chronic Effects: Exposure to component solvent vapor concentrations in excess of the stated occupational exposure limit may result in adverse health effect, such as mucous membrane and respiratory system irritation and adverse effect on kidney, liver and central nervous system.

Target Organs: Central Nervous System (CNS) Depression. May cause blood disorders based upon animal data. May cause liver or kidney damage. Eyes, Respiratory system, skin. Contains a chemical or chemicals which may cause birth defects or other reproductive harm.

Section 12: Ecological Information

Ecotoxicological Information: Not determined.

Chemical Fate Information: Not determined.

Section 13: Disposal Considerations

Waste Disposal Methods: Dispose of contents / containers in accordance with local regulations.

Contaminated Packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.

Section 14: Transportation Information

UN: UN1210, Printing Ink, 3, III

DOT In US, this material may be reclassified as a combustible liquid and is not regulated, via surface transportation, in containers less than 119 gallon or 450 liters per 49 CFR 173.150(f)

Section 15: Regulatory Information

TSCA Inventory Status: Contains one or more components listed on the TSCA inventory

SARA 313 Contains the following components subject to SARA Title III, Section 313

Component	CAS-No	Weight %
Ethylene Glycol n-Butyl Ether Acetate	112-07-2	15 – 30%
Methyl Isobutyl Ketone	108-10-1	< 0.5%
Xylene	1330-20-7	<0.1%
Ethylbenzene	100-41-4	<0.1%

US: California Prop 65 WARNING. This product contains a chemical known in the State of California to cause cancer.
WARNING. This product contains a chemical known in the State of California to cause birth defects or

other reproductive harm.

Component	CAS-No	Weight %
n-Methyl Pyrrolidone	872-50-4	5 – 15%
Methyl Isobutyl Ketone	108-10-1	< 0.5%
Ethylbenzene	100-41-4	<0.1%

Section 16: Other Information

HMIS Rating: Health: 2*
Flammability 2
Reactivity: 0

HMIS rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information in this MSDS must be considered.

Revision: Not relevant

Issue Date: January 5, 2012

Disclaimer: **This information is provided without warranty. The information provided in this data sheet is believed to be correct to the best of our knowledge. This information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal, and release. 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.**

END OF MSDS