

MATERIAL SAFETY DATA SHEET

Information current as of January 1, 1999

Supplier: NOVA POLYMERS, INC.
PO Box 1305, West Caldwell, NJ 07007
888-484-6682

For PRINTING, SIGNAGE PLATES and RELATED MATERIALS

Manufacturer's name: TOYOBO Co., Ltd. (polymer layer only)
Emergency Telephone Number: 06-348-3059 Information phone number: 06-348-3059
Trade Name and Synonyms: NovAcryl, Printight

Product Class: PETG, Aluminum, Laminates, EcoResin

HAZARDOUS COMPONENTS OSHA PEL ACGIH TLV (units) Recommended % (optional)

Methacrylic acid (Cas No 79-41-4)		20 ppm	3
Methanol (Cas No 67-56-1)	200 ppm	200 ppm	NIOSH 200 ppm

CHEMICAL FAMILY: Polyamide Based Photopolymer, solid type

PHYSICAL DATA

Boiling Point (C):	N/A
Specific Gravity (H2O=1):	1.2 (68F)
Vapor Pressure (mmHg):	Solid at room temperature
Evaporation Rate (Butyl Acetate = 1)	N/A
Vapor Density (air=1):	N/A
Melting Point (C):	110 Celsius
Solubility in Water:	10%
Appearance and Odor:	Light brown solid resin. Slightly sweet odor.

FIRE AND EXPLOSION HAZARD DATA

Flash Point	No data
Flammable limit (vol.%)	N/A
Extinguishing Media:	Water, CO2, Foam, Dry Chemical
Unusual fire and explosion hazards:	Not considered a flammable material under normal use
Special fire fighting procedures:	Wear MSHA/NIOSHA approved self-contained breathing apparatus and full cover impervious clothing.

REACTIVITY DATA

Stability:	Stable
Conditions to avoid:	Material becomes unusable for intended function if exposed to ultraviolet light. Preserve in cool and dark place and handle only under safe, yellow lamps. Keep away from heat, spark, flame and any other sources of ignition. This material is stable under normal storage and handling.
Incompatibility (materials to avoid):	Water and light (photo) and other oxidizing agents.
Hazardous decomposition or by-products:	May form toxic substances: carbon monoxide, nitrogen oxide chlorine compounds, etc.
Hazardous polymerization:	Will not occur

MATERIAL SAFETY DATA SHEET

Page 2

HEALTH HAZARD DATA

Primary routes of entry:	Inhalation: Yes Dermal: Yes	Ingestion: Yes
Health Hazards (acute and chronic):	Direct eye or skin contact with raw product may cause irritation. Nausea by solvent vapor inhalation.	
Carcinogenicity:	NTP: n/a 1ARC Monographs: n/a	OSHA Regulated: n/a
Signs and Symptoms of exposure:	Dizziness. Headache. Irritation	
Medical conditions generally aggravated by exposure:	Dermatitis	
Emergency and First Aid Procedures:	EYE CONTACT: Immediately flush with water for 15 minutes. Get medical attention. SKIN CONTACT: Wash area with soap and water. INHALATION: Remove to fresh air. INGESTION: Get medical help immediately.	

PRECAUTIONS FOR SAFE HANDLING AND USE

Procedure when material is spilled:	Material is solid, cannot be spilled. In case of transport damage to packaging, material or container, material to be salvaged must not have been exposed to ultraviolet light.
Waste Disposal method:	Processed plates may be treated as scrap. Follow local regulations.
Precautions to be taken in handling and storing:	Store below 100 degrees Fahrenheit in a dry area. Do not store near heat sources. Material is light sensitive. Do not open package until ready to use. Handle in U/V protected light only. Must be stored flat. Avoid skin contact with sheet material during processing. When handling plates during processing, gloves are necessary to avoid contact with the wash solution.
Other precautions:	Empty containers contain hazardous product residues, both liquid and vapor. Avoid skin contact and breathing vapor.

CONTROL MEASURES

Ventilation:	Yes, generally required to reduce exposure to below allowable levels. Only at the point of use.
Mechanical (general):	Fan
Protective items:	Use rubber or vinyl gloves. Eye protection is recommended.
Work/hygienic practices:	Wash hands and face after processing plates. Use skin care lotion.

ADDITIONAL REMARKS

None

MATERIAL SAFETY DATA SHEET

Page 3

Waste water and odor composition

Basic ingredients in NovAcryl photopolymer layer are as follows:

Main raw material: Polyamide polymer and photopolymerable monomers containing acryloyl group.
Additive: Low molecular saturated compound containing amino group and Hydrocyderivative. Safety of this photopolymer layer was confirmed by using LD-50 feeding test.

<u>Items</u>	<u>Density</u>
pH	6 – 7
Chemical Oxygen Demand	6000 ppm
Biological Oxygen Demand	1400 ppm
Iodide Consumed Under	10
Suspended Solid Under	10

Note: the above density readings are based on a 1% waste water concentration of NovAcryl photopolymer layer. If the area in a negative film to be washed out is around 50%, one percent concentration would equal 8 sheets of 19" x 25" plates.

Toxicology tests were performed and the photosensitive layer was proven "not harmful." Below are the test methods and subsequent results:

<u>Test</u>	<u>Method/Result</u>
Acute Oral (mouse)	LD-50 / 3.5 G/KG
Eye irritation (Rabbit)	Minus
Ames Assay	Minus
Human Patch	Test Minus

The odor caused by the effluent photopolymer layer is caused by its cross-linking agent. The cross-linking agent is activated by Ultra Violet light. It is an oxidized material and is registered by CAS.