Product Datasheet

Ultralane® Thinner #1
Ultralane® Thinner # 25
Ultralane® Thinner # 50
Ultralane® Thinner # 60

The Ultralane Thinner series of materials are composed of high purity, low moisture, solvent blends that are efficient viscosity reducers for use with Epoxy, Urethane, Polyester, and Silicone coatings, adhesives, encapsulants, casting materials, and many other compounds.

Using these thinners with coatings allows for thinner coating layers to be applied, makes it easier to apply coatings using spray or dip coating equipment, and improves the uniformity of the finished coating. The Ultralane Thinners help sprayed coatings to coalesce into uniform films and help brushed coatings to level out after application to eliminate visible brush strokes.

Using them with adhesives can allow for better surface wetting, better air release, and may help activate plastic surfaces so that better adhesion occurs. For encapsulating and casting systems, thinners are often used at low levels, to help with air release, impregnation of fine wires and surface detail, to extend the work-life of the system or to achieve a glossier cured appearance

Ultralane Thinner #1 (formerly just “Ultralane Thinner” or Uralane/Arathane 5750 Thinner) is the original product and is a high efficiency, fast evaporating, halogen-free, urethane grade thinner. It is used with Arathane 5750-AB (LV) and other urethane coatings and adhesives in percentages ranging from 1% to 150% by weight of the coating. The addition of the thinner reduces the surface tension and viscosity, yielding a more uniform coating and allowing for the application of thinner coating layers upon drying. If allowed to evaporate fully prior to curing, this thinner has been shown not to effect the outgassing results achieved with NASA approved low outgassing coatings.

Ultralane Thinner #25 performs very similarly to the original Ultralane Thinner #1, but is recognized by the US EPA and most air quality management districts as a non-HAPS material that is exempt from VOC regulations. It is biodegradable, non-bio-accumulative, and has low exotoxicity potential. It is a high efficiency, medium to fast evaporating, halogen-free, urethane grade thinner. It can be used with urethane coatings and adhesives in percentages ranging from 1% to 150% by weight of the coating. If allowed to evaporate fully prior to curing this thinner has been shown not to effect the outgassing results achieved with NASA approved low outgassing coatings.

Ultralane Thinner #50 is a high efficiency, medium evaporating, halogen-free, urethane grade thinner. It has been used with Arathane 5750-AB (LV) and other urethane coatings and adhesives in percentages ranging from 1% to 100% by weight of the coating.

Product Datasheet

Ultralane Thinner #60 is a high efficiency, slow evaporating, halogen-free, urethane grade thinner. It has been used with Arathane 5750-AB (LV) and other urethane coatings and adhesives in percentages ranging from 1% to 100% by weight of the coating. Ultralane Thinner #60 complies with EPA's 33/50 rules for non-photochemically active materials.

TYPICAL PROPERTIES

	Ultralane Thinner	Ultralane Thinner #25	Ultralane Thinner #50	Ultralane Thinner # 60
Visual Appearance	Clear liquid	Clear liquid	Clear liquid	Clear liquid
Density, g/ml	0.86	0.98	0.92	0.97
Flash Point	-5°C (23°F)	8°C (46.4°F)	22°C (68°F)	45°C (115°F)
Boiling point	79°C	>71°C	122°C	145°C
Evaporation rate at 23°C*	5.0	>4.5	1.20	0.37

* Note: evaporation rate is determined relative to the evaporation rate of a reference solvent called Butyl Acetate – on this scale Isopropanol (IPA) has a value of about 2 and water has an evaporation rate of about 0.3. Evaporation rates vary with temperature, atmospheric pressure, air flow over the surface, and other variables.

COATING APPLICATIONS:

All of the Ultralane Thinners can be added to epoxy, urethane and other types of coatings to reduce their viscosities and to make the coatings more suitable for spraying, dip coating, brush coating, and most other methods of coating application. The original Ultralane Thinner has been used extensively with Arathane 5750 A/B(LV), a high performance, space grade urethane conformal coating. The followings application information applies to usage with Arathane 5750, but is also applicable to use with most other urethane coatings, adhesives, and many other materials

- **Spraying**

  Some spray systems are able to apply high solids urethane coatings and to provide up to 8 mils (0.2 mm) thickness per pass. However, for most conventional spray systems, a coating thickness of 1-3 mils (2.5-7.5 x 10^{-2} mm) is normal. Adding the Ultralane thinners allows for thinner coating thicknesses to be achieve, lower air pressures to be used, and may help to achieve a more uniform coating application.

  As a general starting point, try 20 parts by weight of one of the Ultralane thinner per 100 parts by weight of the Arathane 5750A/B(LV). For other materials consider higher or lower levels depending on the solids content and viscosity of the material. The Arathane has an initial viscosity of about 300 - 500 centipoise and a solids content of 85%. For materials with lower solids content, consider starting with 10 or 15 parts by weight thinner and for materials with higher solids contents, consider starting with 25% or greater thinner levels.

  For many coatings, adding fresh thinner every couple of hours, will help to keep the mixture's viscosity consistent for spraying and may prolong the pot life of the coating

for up to 24 hours. The results of such additions will vary from coating to coating and with the thinner used, and so must be evaluated carefully prior to use.

Levels up to 150 parts of Ultralane Thinner per 100 parts of the coating have been reported to be used successfully in some applications – especially in spray application in thin layers where the thinner has the maximum ability to evaporate. The Ultralane Thinner #25, can generally be used at the same usage levels as the original Ultralane Thinner with very similar results expected.

For the Ultralane Thinner #50 & #60, we recommend a maximum usage level of 100 parts by weight per 100 parts by weight of the coating due to their slower evaporation rates. In every case, use the minimum thinner level that allows you to achieve the desired coating thickness and appearance. When using high levels of thinner, be sure to allow the coating as much time as possible at room temperature prior to heat curing to allow for maximum solvent evaporation. Allowing the coating to dry to a tack-free state prior to heat curing is best as the thinner could otherwise become trapped in the coating and produce bubbles, hazy regions, or other defects. Please contact us for technical support if any problems occur.

- **Dip Coating**
  Thinner additions are helpful to control the thickness of the dip coating applied to a circuit board or other coated article. As above, 20 parts by weight thinner to Arathane 5750B(LV) is a good starting point. For other coatings, adjust as suggested above under spraying. The coating thickness derived will be affected by the level of thinner added and the speed at which the circuit board or other substrate is dipped into the coating and then withdrawn from the bath. Additions of fresh thinner to the bath on a periodic basis will tend to extend the live of most coatings, but should be evaluated prior to production use.

- **Brush Coating**
  For Arathane 5750A/B(LV) and most other low viscosity urethane coatings (ie. viscosities under 1,000 cP). The use of a thinner may not be necessary. However, the addition of small amounts of Ultralane thinner (ex. 5-10 % by weight) can extend the open time or work-life of the coating and help brush strokes to smooth out. As with spraying applications, repeated additions of thinner will assist in keeping the coating viscosity stable and prolong the useful life of the coating. The Ultralane Thinners can also be used to allow urethane coatings to be applied in thinner layers than is possible at their normal viscosity. In addition, the use of thinners often improves the surface appearance (glossiness) of the cured urethane coatings.

Use with Adhesives

The Ultralane Thinners have found use in thinning one & two part urethane, epoxy, & silicone adhesives as well as in their traditional use with urethane coatings. They give most of the same benefits as with coatings: prolonged

work-life, lower viscosity, thinner application thickness, increased ease of processing, etc. Low level additions of 1% - 5% by weight or volume may also be helpful in vacuum degassing paste adhesives that otherwise have too high of a surface tension to be easily degassed.

However, the usage level with adhesives is generally lower than for coatings with 20% by weight being the maximum suggested use level for most applications. Higher levels of thinner can be possible in some applications, but must be determined experimentally by the user.

When using the thinners with an adhesive it is important to be sure that the thinner is able to escape the adhesive bond-line to ensure that there is no impairment of the bond strength. For example, when bonding porous substrates such as wood, cloth, foams, etc. the thinner can escape through the substrate and therefore is unlikely to become trapped as voids within the bond-line. Alternately, when bonding metals or glass, the thinner may not be able to escape through the substrate and so must be allowed time to evaporate before the substrates are joined together.

PACKAGING AVAILABLE:

The Ultralane thinner series is available in 6oz steel bottles, quarts, and gallons. Other sizes are available by request. Please note that all container sizes will include desiccant beads that will settle to the bottom of the container. These microporous, ceramic beads absorb moisture and help to keep the Ultralane Thinners extremely low in moisture even after being opened and resealed many times.

STORAGE GUIDELINES:

Store the Ultralane Thinner #1, Ultralane Thinner #25, Ultralane Thinner #50 and Ultralane Thinner #60 in a clean, cool and dry environment in its tightly closed original containers. Protect from extended exposure to temperatures below 0ºC (32ºF). Also protect from exposure to extended moisture or high humidity. Tightly re-seal containers after use. If the recommended storage conditions are observed the products will have a minimum shelf-life of 24 months from the date of shipment.

HANDLING PRECAUTIONS:

Mandatory and recommended industrial hygiene procedures should be followed whenever these products are being handled and processed. For additional information please consult the corresponding material safety data sheets.

PERSONAL HYGIENE:

Ultralane Thinner #1

FLAMMABLE! Causes eye irritation. Causes skin irritation and possible allergic reaction. Harmful if inhaled or swallowed. In accordance with good industrial practice, handling with care and avoid

unnecessary personal contact. Avoid contact with eyes and prolonged or repeated skin contact. Do not inhale mists. Use with adequate ventilation. For industrial use only.

Ultralane Thinner #25
FLAMMABLE! Causes eye and skin irritation. Harmful if inhaled or swallowed. In accordance with good industrial practice, handling with care and avoid unnecessary personal contact. Avoid contact with eyes and prolonged or repeated skin contact. Do not inhale mists. Use with adequate ventilation. For industrial use only.

Ultralane Thinner #50
FLAMMABLE! Causes eye irritation. Causes skin irritation and possible allergic reaction. Harmful if inhaled or swallowed. In accordance with good industrial practice, handling with care and avoid unnecessary personal contact. Avoid contact with eyes and prolonged or repeated skin contact. Do not inhale mists. Use with adequate ventilation. For industrial use only.

Ultralane Thinner #60
COMBUSTIBLE! May causes eye irritation, skin irritation and possible allergic reaction. Harmful if inhaled or swallowed. In accordance with good industrial practice, handling with care and avoid unnecessary personal contact. Avoid contact with eyes and prolonged or repeated skin contact. Do not inhale mists. Use with adequate ventilation. For industrial use only.

FIRST AID

In case of contact:
Skin – Immediately wash skin thoroughly with mild soap and water. Remove contaminated clothing and wash before reuse. Destroy contaminated shoes and other articles made of leather.
Eyes – Immediately flush eyes with plenty of water for 15 minutes and get prompt medical attention.
Inhalation - Remove person to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician.
Ingestion - Do not induce vomiting. Dilute with plenty of water and contact physician immediately. Never give anything by mouth to an unconscious person.

DISCLAIMER:

IMPORTANT: The following supercedes Buyer's documents. **SELLER / MANUFACTURER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE**. No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller / Manufacturer be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results presented are based on controlled or laboratory work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended

Specialty Polymers & Services, Inc. (SP&S)
27822 Fremont Court **Tel: 661-294-1790**
Valencia, CA 91355 **Fax: 661-294-0640**
www.spolymers.com **info@spolymers.com**