

## **Ultralane® Thinner #1**

## **Ultralane® Thinner # 25**

## **Ultralane® Thinner # 50**

## **Ultralane® Thinner # 60**

The Ultralane® Thinner series is composed of high purity, low moisture, solvent blends that are efficient viscosity reducers for many epoxy, urethane, polyester, and silicone materials. They have been used with coatings, adhesives, encapsulants, casting materials, and many other types of compounds for greater ease of use or better cured results.

Using these thinners with coatings allows thinner coating layers to be applied, makes it easier to use spray or dip coating equipment, and can improve the uniformity and appearance of the cured coating. The Ultralane Thinners help sprayed coatings to coalesce into uniform, glossy films and helps to reduce or eliminate visible brush strokes in coatings applied by brush.

Using these thinners 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 improve air release, impregnation of fine wires and surface detail, to extend the work-life of the mixed system, and to achieve a glossier cured appearance

**Ultralane Thinner #1** (formerly just “Ultralane Thinner”) is the original product. It was developed as a replacement for and the replacement of the former Arathane® 5750 Thinner when that thinner was discontinued, and is a high efficiency, fast evaporating, halogen-free, urethane grade thinner. It is used with Arathane® 5750AB (LV) and other urethane coatings and adhesives in percentages ranging from 1% to 150% by weight of the coating. The addition of this thinner reduces the surface tension and viscosity of the coating which yields a more uniform coating and can allow for the application of thinner coating layers. If allowed to evaporate fully prior to curing, this thinner has been shown to have negligible effects on the ASTM E 595 outgassing results for coatings it is used with.

**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. In addition, it also has been found to have negligible effect on the ASTM E 595 outgassing results for fully cured coatings.

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

**Ultralane Thinner #60** is a high efficiency, slow evaporating, halogen-free, urethane grade thinner. It has been used with Arathane® 5750AB (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

	<b>Ultralane Thinner</b>	<b>Ultralane Thinner #25</b>	<b>Ultralane Thinner #50</b>	<b>Ultralane Thinner # 60</b>
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® 5750A/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 ( $2.5-7.5 \times 10^{-2}$  mm) is normal. Adding the Ultralane® Thinners allows for thinner coating thicknesses to be achieved, 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 mixed 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 about 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 concentrations.

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 where the coating is applied in thin layers. 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. It is recommended to use the minimum thinner concentration 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 ideal, if possible. This step will ensure that the thinner does not 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 concentration. 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 help to extend the pot life of most coatings, but this 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 for brush application. However, the addition of small amounts of an 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 pot life of the mixed 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 steel 8oz, 1-quart, and 1-gallon containers. Other sizes are available by request. **Please note that all package sizes include 1/16" diameter ceramic desiccant beads.** These desiccants will settle to the bottom of the container and absorb moisture that might otherwise contaminate the thinners after opening. They help to maintain the very low moisture content of the Ultralane® Thinner even after the container has been opened. Because of their density the beads stay at the bottom of the container and the thinners can generally be decanted without any issues. .

## **STORAGE GUIDELINES:**

Store the Ultralane Thinner #1, Ultralane Thinner #25, Ultralane Thinner #50 and Ultralane Thinner #60 in clean, cool and dry environment in their tightly closed original containers. Protect from extended exposure to temperatures below 0°C(32°F). Also protect from exposure to moisture or high humidity. Tightly re-seal containers after every 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.

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**\*Trademark Notice:** Please note that Arathane® is a registered trademark of Huntsman Advance Materials. SP&S is the Authorized Distributor for Arathane® 5750A/B(LV) conformal coatings, but Huntsman does not manufacture, endorse, or warranty the Ultralane® Thinners in anyway. The Ultralane® Thinners are produced by and solely the responsibility of SP&S.

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