



Millathane® UV

Introduction

Millathane® UV* is a UV (UltraViolet light) curable millable polyurethane compound. For the first time ever, millable polyurethane extrusions can be continuously cured, and products molded, using UV light without the use of ovens, microwaves or salt bath units.

How It Works

First, we listen to you. We determine your application and the properties you require. Then, we develop a custom Millathane® UV formulation and compound just for you.

Millathane® UV curable compounds can be extruded or calendered, onto fabric or as unsupported sheet, and then continuously cured by passing them through a UV-curing conveyor chamber. Molded parts can be press-cured using special transparent molds to allow curing with UV light, or can be cured in a UV chamber. Time of irradiation varies with the nature and type of material, the type and concentration of other ingredients, and the type and power of the light source.

What You Can Make With It

Millathane® UV compounds can be extruded to make tubing and other continuous shapes, such as bars, rods, L-channels, U-channels, square tubing, and the like. Physical properties are similar for UV and peroxide cured compounds. Typical compounds are in the 60-80 Shore A range, but higher and lower hardnesses will be available.

Potential applications for Millathane® UV include:

- Continuous Extrusions - profiles, tubing, hose covers, cable jackets, tapes, & sheeting
- Molded Parts
- Rubber Covered Rollers - crosshead extrusion, strip winding
- Rubber-Coated Fabrics
- Coatings
- Applications Requiring Low Temperature or Room Temperature Cures

Millathane® UV Benefits Over Conventional Curing

- Super-fast cure times = Increased productivity
- Ability to continuously cure Millathane® millable polyurethane compounds
- Abrasion resistance and COF may be improved over conventional processing
- Lower mold fabrication costs - Use Lexan or epoxy instead of steel!
- Use less expensive hub and insert materials since less sensitivity to thermal distortion
- Less shrinkage due to lower curing temperatures
- Rubber-coated fabrics can be cured immediately after calendaring
- 3D UV Processable - Rapid turnover from solid model to working prototype
- Reduced energy costs due to fast curing at room temperature - Usually, just 1 to 2 minutes!

*Patent Published 2016- - TSE Industries, Inc.



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Properties are similar for UV (Ultraviolet Light) and Peroxide Cured Compounds

	UV Cure 2 min, 400W lamp	Peroxide Cure 6 min, 160°C
Hardness, Shore A	65	67
Tensile Stress 100% E, lb/in ² (MPa)	305 (2.1)	285 (2.0)
Tensile Stress 300% E, lb/in ² (MPa)	900 (6.2)	1020 (7.0)
Tensile Strength, lb/in ² (MPa)	2600 (17.9)	2485 (17.1)
Elongation, %	460	445
Bashore Resilience, %	55	57
Compression Set, 22 hr/70°C	26	21
DIN Abrasion, mm ³ loss	52	54

Ref: UV-Curing.ppt/XP8263LM/tlj/2015-09-29

Extruded compounds have somewhat lower tensile strength than molded samples (other properties are similar)

