

DESCRIPTION: Poly 15-Series Liquid Plastics are excellent for casting decorative objects, production parts, tools, models, patterns, fixtures, duplicate masters, mold shells and more.

Choose the 15-Series Liquid Plastic that's best for your application:

Poly 1511, 1512 and 1512X plastics have the feel and density of wood or thermoplastics. Both Poly 1511 and 1512X mixed with PolyFiber II create tough, lightweight mold shells.

Poly 15-3 and 15-3X are dense, mineral-filled plastics with low shrinkage.

For applications requiring water-clear, non-yellowing plastics, consider **Poly-Optic® 14-Series** products. For applications requiring spray application, consider **EasyFlo-Series** products.

MOLD PREPARATION: These products reproduce minute detail from a mold or pattern but may stick or foam when poured on improperly prepared surfaces. A trial casting on a surface finish similar to the final mold should be made to avoid damaging a valuable mold. Polyethylene and silicone rubber molds (e.g., TinSil® and PlatSil® silicone rubber) do not require a release agent. When casting 15-Series plastics in silicone molds, the use of an appropriate primer sprayed in the mold and allowed to dry before casting, will result in a pre-primed cast part and will help additional paint adhere to the part. Latex, polyurethane rubber (e.g., 74- and 75-Series rubbers) or metal molds must be dry and require a coat of a suitable release agent (i.e., Pol-Ease® 2300 Release Agent).

MIXING: Before use, be sure that Parts A and B are at room temperature and that all tools are ready. Surface and air temperatures should be above 60°F during application and for the entire curing period.

Read product labels to determine the correct mix ratio and if pre-mixing of Part A or Part B component is required. Use metal or plastic mixing vessels and spatulas to avoid introducing moisture (paper or wood tools can introduce moisture).

Pourable Polyurethane Casting Resins

Why Choose 15-Series Plastics?

- Easy 1A:1B mix ratios
- Reproduces fine detail
- Can be machined, drilled and sanded
- Tough and hard, but not brittle
- Lightweight for mold shells
- Low shrinkage upon cure
- Fast-setting and slower-setting options
- Low odor formula
- Castable in large masses

Weigh Parts A and B into a mixing container, such as a polyethylene pail. Mix thoroughly, scraping the sides and bottom of the mixing container. Pour mix into cavity as soon after mixing as possible.

Once the containers of Parts A and B are opened, they should be used or resealed tightly since atmospheric moisture contamination may cause foaming of the plastic. PolyPurge, a dry gas product, can be sprayed into opened containers of 15-Series plastics to displace moist air before resealing containers to extend shelf life.

CURING: Castings should be allowed to remain in the mold until thoroughly cured. Parts demolded too soon may be subject to deformation. Use of pre-warmed molds will hasten curing. Low temperatures will slow the curing and extend demold time. Refer to the Physical Properties table for individual product pour and demold times. Thin castings or thin sections of castings will take longer to cure than thick castings or thick sections of castings.

ADDITIVES: Poly 15 Part X Accelerator can be added to accelerate cure times. Stir Part X into Part B before adding Part A. When using Part X,

PHYSICAL PROPERTIES

Poly 15-Series Product	15-3/15-3X	1511	1512/1512X
Mix Ratio By Weight	1A:1B	1A:1B	1A:1B
Shore Hardness	D80	D71	D71
Pot Life (min) (1 lb mix)	15 (15-3) 5 (15-3X)	10	22 (1512) 5 (1512X)
Maximum Exotherm (1 lb mass)	125°F / 52°C (15-3) 160°F / 71°C (15-3X)	251°F (122°C)	251°F (122°C)
Demold Time (hr) (varies with thickness)	12-16 (15-3) 1-12 (15-3X)	1-16	1-16 (1512) 0.5-4 (1512X)
Specific Gravity	1.53	1.10	1.10
Cured Color	Tan	White	White
Mixed Viscosity (cP) (after 2 min)	2,000	400	400
Specific Volume (in ³ /lb)	18	25.1	25.1
Shrinkage Upon Cure (in/in)	0.0006* (15-3) 0.0015* (15-3X)	0.0044*	0.0034/0.0048*

*Shrinkage is primarily caused by gelling while hot then cooling. Parts that cure with minimal temperature rise exhibit minimal shrinkage.

exotherm (heat of reaction) and thus shrinkage is increased. Experiment to determine the best amount of Part X to use, but never use more than 1% of the total weight of the mix or the final physical properties may be affected. **Fillers** can be added to alter the properties of the cured plastic. It is imperative that any filler be thoroughly dried before mixing with resin. Fillers should be added after Part A and Part B are mixed. Add **PolyFiber II** to thicken the uncured mix to make a paste-like consistency. Microballoons can be added to create a lower density material. Bronze powder, calcium carbonate or other dry fillers can be added for varying effects. **PolyFil ND**, a filler with the same density as Poly 1511, 1512 and 1512X, can be added to reduce the cost of castings and lower the exotherm, thereby reducing shrinkage. Experiment by adding fillers at varying levels up to ~50% by weight of the mixed resin.

COLORS: Add PolyColor Dyes to 15-Series Part B before mixing with Part A to create plastics of any color. Add up to 0.5% PolyColor Dye of the total mixed weight when using PolyColor Black, Brown, Blue, Green, Red and Yellow. Add up to 2% PolyColor Dye of the total mixed weight when using PolyColor White and Fleshtone.

FINISHING: Poly 15-Series Plastics yellow and chalk when exposed to sunlight and should be painted or sealed for exterior use. The adhesion of this coating should be checked carefully over a period of time to determine that it is satisfactory for the intended use. If all mold release is removed by detergent washing, most oil paints work well. An auto body primer sprayed onto the clean casting and allowed to cure for at least 24 hours can help paint adhere better. Poly 15-Series Plastics can be easily drilled, sanded and machined.

CLEAN UP: Tools should be scraped clean before the plastic is hard. Denatured alcohol is a good cleaning solvent, but must be handled with extreme caution owing to its flammability and health hazards. Work surfaces can be coated with wax or release agent so that cured plastic can be easily removed.

SAFETY: Before use, read product labels and Safety Data Sheets. Follow safety precautions and directions. Contact with uncured products may cause eye, skin and respiratory irritation and dermal and/or respiratory sensitization. Avoid contact with skin and eyes. If skin contact occurs, remove with waterless hand cleaner or alcohol then soap and water. In case of eye contact, flush with water for 15 minutes and call physician. Use only with adequate ventilation. Polytek plastics are not to be used where food or body contact may occur. Plastics burn readily when ignited. Care should be taken with sanding dust and other easily ignitable forms of these products.

STORAGE LIFE: For best results, store products in unopened containers at room temperature (60-90°F/15-32°C). Use products within six months.

DISCLAIMER: The information in this bulletin and otherwise provided by Polytek® is considered accurate. However, no warranty is expressed or implied regarding the accuracy of the data, the results to be obtained

by the use thereof, or that any such use will not infringe any patent. Before using, the user shall determine the suitability of the product for the intended use and user assumes all risk and liability whatsoever in connection therewith.

Accessories:

Accelerator

Poly 15 Part X Accelerator - 1 oz, 1 lb, 8 lb, 40 lb

Fillers

Bronze Powder - 2 lb, 10 lb, 110 lb

PolyFil ND - 22 lb

Thickeners

PolyFiber II - 0.5 lb, 3 lb, 15 lb

Sealers & Release Agents

Pol-Ease® 2300 Release Agent - 12-oz can, case of 12

Pol-Ease® 2500 Release Agent - 12-oz can, case of 12

PolyCoat Semi-Permanent Sealer/Release - 1qt, 1 gal

Poly PVA Solution (Green or Clear) - 2 lb, 40 lb

Product Life Extender

Poly Purge Aerosol Dry Gas - 10-oz can, case of 12

Colors

PolyColor Dyes - 0.25 lb, 1 lb, 8 lb

Black - Brown - Blue - Green - Red - Yellow - White - Fleshtone

PACKAGING

Product(s)	Kit Size (lb)	Part A		Part B	
		Weight (lb)	Volume*	Weight (lb)	Volume*
Poly 15-3 & Poly 15-3X Mix Ratio: 1A:1B	5.0	2.5	1 qt	2.5	1 qt
	20.0	10.0	1 gal	10	1 gal
	100	50	5 gal	50	5 gal
Poly 1511, Poly 1512, Poly 1512X Mix Ratio: 1A:1B	4.0	2.0	1 qt	2.0	1 qt
	16.0	8.0	1 gal	8.0	1 gal
	80	40	5 gal	40	5 gal
	900	450	55 gal	450	55 gal

*Volume measurements are approximate.