



# TUF

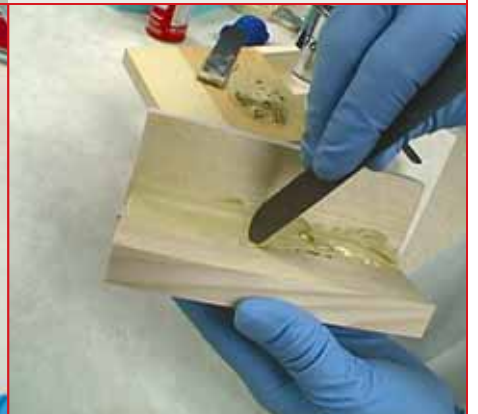
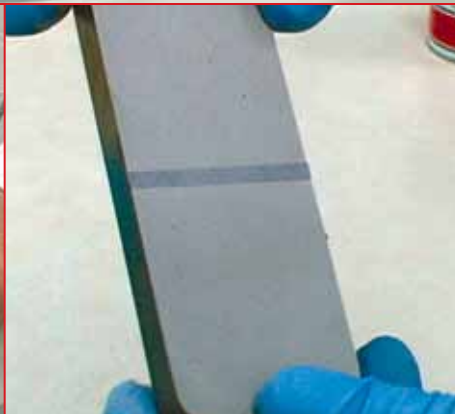
## Polyester Repair & Build-up Materials



### Freeman TUF Polyester Repair & Build-up Materials

Formulated and manufactured by Freeman, TUF is a complete line of quality polyester repair & build-up materials. TUF materials bond to most any surface, are fast-setting, and sandable in 15 minutes. When fully cured, TUF materials exhibit good wear resistance and chemical resistance.

Our TUF products are available in a range of colors and consists of a variety of products designed to be compatible with Pine, Jelutong, and Mahogany lumbers. TUF also features specialty formulations designed for repairing metal, laminate tooling, high temperature tooling, and polyurethane and epoxy tooling boards.



## Freeman TUF Repair and Build-Up Materials

### TUF-Fil®

Freeman TUF-Fil closely matches mahogany and other hardwoods in hardness. It is suitable for high wear applications, and when fully cured, TUF-Fil may be scraped, filed, tapped and sanded. While it is still rubbery, it can be carved using woodworking tools. Like all TUF products, TUF-Fil features:

- \* Low shrinkage
- \* Fast setting, sandable in 15 minutes
- \* Bonds to most any surface
- \* "No-sag" properties
- \* Good chemical resistance

Catalog Number	Description	Availability	Net Wt Lbs. (Kg)
053405	TUF-Fil Mahogany	Quart	2.8 (1.3)
053410	TUF-Fil Pine	Quart	2.8 (1.3)
053415	TUF-Fil Aluminum (Gray)	Quart	2.8 (1.3)
053425	TUF-Fil Mahogany	Gallon	11.5 (5.2)
053430	TUF-Fil Pine	Gallon	11.5 (5.2)
053435	TUF-Fil Aluminum (Gray)	Gallon	11.5 (5.2)
053428	TUF-Fil Mahogany	3 Gallon	32.5 (14.8)
053433	TUF-Fil Pine	3 Gallon	32.5 (14.8)
053437	TUF-Fil Aluminum (Gray)	3 Gallon	32.5 (14.8)

### TUF-Fil® White

TUF-Fil White is the hardest and most dense of the TUF line, closely matching epoxy laminate tooling. It is an ideal repair material for laminate tooling.

Catalog Number	Description	Availability	Net Wt Lbs. (Kg)
053420	TUF-Fil White	Quart	3.8 (1.7)
053440	TUF-Fil White	Gallon	12.5 (5.7)
053438	TUF-Fil White	3 Gallon Cartridge	37.5 (17)

### TUF-Carv®

Freeman TUF-Carv Repair & Build-Up Material is a less dense material than TUF-Fil, closely matching the hardness of pine and jelutong. It is ideal for any job that requires a durable, yet carvable finish. TUF-Carv, when cured, can be carved, sawed, sanded, filed, tapped and machined easily with woodworking tools. Like all TUF products, TUF-Carv features:

- \* Low shrinkage
- \* Fast setting, sandable in 15 minutes
- \* Bonds to most any surface
- \* "No-sag" properties
- \* Good chemical resistance

Catalog Number	Description	Availability	Net Wt Lbs. (Kg)
053205	TUF-Carv Mahogany	Quart	1.75 (0.8)
053210	TUF-Carv Pine	Quart	1.75 (0.8)
053213	TUF-Carv White	Quart	1.75 (0.8)
053215	TUF-Carv Mahogany	Gallon	7 (3.2)
053220	TUF-Carv Pine	Gallon	7 (3.2)
053223	TUF-Carv White	Gallon	7 (3.2)
053225	TUF-Carv Mahogany	3 Gallon Cartridge	21 (9.5)
053230	TUF-Carv Pine	3 Gallon Cartridge	21 (9.5)
053228	TUF-Carv White	3 Gallon Cartridge	21 (9.5)

### Hi-Temp TUF-Fil®

Hi-Temp TUF-fil is ideal for the repair, build-up or alteration of tooling that will be subjected to operating temperatures ranging from 150°F to 350°F. Hi-Temp TUF-fil features high viscosity, and very good adhesive properties when used on high temperature tooling.

Catalog Number	Description	Availability	Net Wt Lbs. (Kg)
053451	Hi-Temp TUF-Fil Dark Gray	Quart	2.5 (1.1)
053452	Hi-Temp TUF-Fil Dark Gray	Gallon	10 (4.5)
053453	Hi-Temp TUF-Fil Dark Gray	3 Gallon Cartridge	30 (13.6)

## TUF Colors

Pine



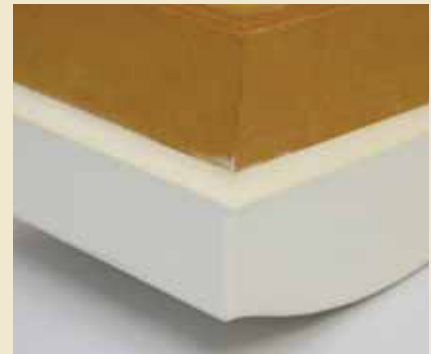
Available in:  
TUF-Fil  
TUF-Carv  
TUF-Blend

Mahogany



Available in:  
TUF-Fil  
TUF-Carv  
TUF-Blend

White



Available in:  
TUF-Fil White  
TUF-Carv

## TUF-Blend

Freeman TUF-Blend is a ready-made formulation that fills the hardness gap between TUF-Fil and TUF-Carv. TUF-Blend, when cured, can be carved, sawed, scraped, filed, drilled, tapped, machined and sanded using either wood or metalworking tools. While it is still rubbery, TUF-Blend can be carved or shaped.

Catalog Number	Description	Availability	Net Wt Lbs. (Kg)
053305	TUF-Blend Mahogany	Quart	2.8 (1.3)
053310	TUF-Blend Pine	Quart	2.8 (1.3)
053315	TUF-Blend Mahogany	Gallon	11.5 (5.2)
053320	TUF-Blend Pine	Gallon	11.5 (5.2)

## Quik-Fil

Quik-Fil is a modeling board repair paste designed specifically for the repair, build-up and forming of fillets on medium-density modeling boards. It is similar in hardness to most 30-40 lb density boards and colored brown to match the most popular class of modeling boards. Quik-Fil also features excellent bonding properties with very little sag.

Catalog Number	Description	Availability	Net Wt Lbs. (Kg)
053441	Quik-Fil Brown	Quart	1.1 (0.5)
053442	Quik-Fil Brown	Gallon	4.4 (2)

## Econo-Fil

A lower-cost repair material which will enable you to repair and fill voids in your patterns and tools more economically. Econo-Fil sets up fast and is easy to apply.

Catalog Number	Description	Availability	Net Wt Lbs. (Kg)
053500	Econo-Fil Tan	Gallon	7.5 (3.4)
053505	Econo-Fil Tan	3 Gallon	21 (9.5)
053501	Cream Hardener – Red	2.7 oz. (79.8 ml) Tube	

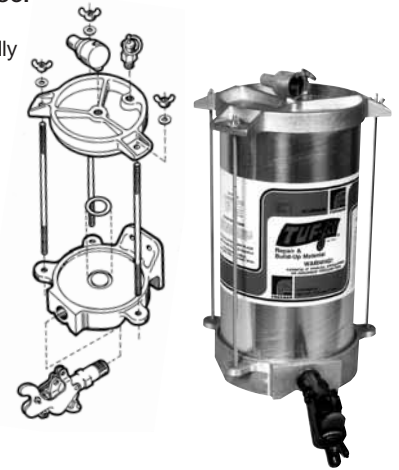
## Cream Hardener

A premium quality white catalyst designed for use with all of the TUF Products. This product may also be used to catalyze other manufacturers' polyester filler products. The bright white color does not significantly change the color of the basic resin.

Catalog Number	Description	Availability
053445	Cream Hardener	1 oz. (29.5 ml) Tube
053450	Cream Hardener	4 oz. (118.3 ml) Tube

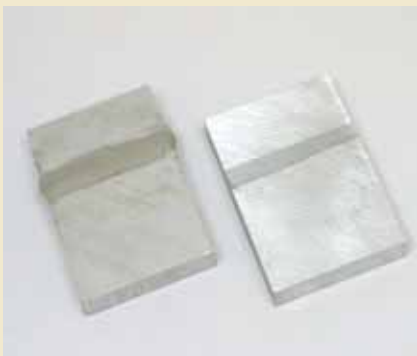
## TUF Pneumatic Dispenser

A heavy duty, cast aluminum dispenser designed specifically for use with 3-gallon cartridges of TUF-Fil, TUF-Carv and Econo-Fil. When these products are used in conjunction with the Pneumatic Dispenser shown at the right, you have the convenience and economical means of dispensing only the amount of product needed for any job with little to no waste or mess. Its design permits it to be mounted anywhere in your shop for easy accessibility.



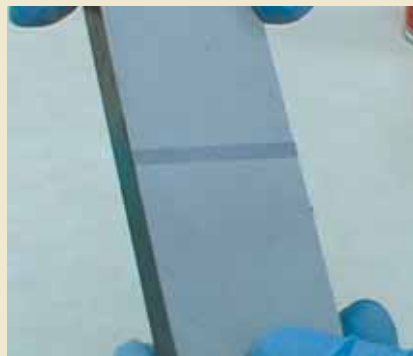
Catalog Number	Description
053470	3 Gallon Dispenser for TUF Line
053471	Replacement Spout For TUF-Fil Dispenser
053462	Replacement Gasket For 3 Gallon Dispenser

Aluminum



Available in:  
TUF-Fil

Dark Gray



Available in:  
Hi-Temp TUF-Fil

Brown



Available in:  
Quick-Fil

## TUF Specifications

	Mix Ratio Resin to Hardener by wt.	Gel Time (minutes)	Hardness (Shore D @ 24 hrs)	Viscosity (cps@77°F)	Density (g/cc)	Available Colors
TUF-Fil	100:1.5	11	81	912,000	1.74	Mahogany, Pine, Aluminum
TUF-Fil White	100:1.5	9	95	400,000	2.50	White
TUF-Carv	100:1.5	10	71	581,000	1.14	Mahogany, Pine, White
TUF-Fil Hi-Temp	100:2.0	9	82	830,000	1.68	Dark Gray, Black
TUF-Blend	100:1.5	7	75	776,000	1.54	Mahogany, Pine
Quik-Fil	100:1.5	11	70	208,000	0.89	Brown
Econo-Fil	100:1.5	5	70	350,000	1.17	Tan

## Terms and Conditions

### Ordering

For fast and accurate ordering, always refer to the catalog number for each product.

### Quotations & Prices

Quotations will be given upon request. Prices are subject to change without prior notice and do not include sales or excise taxes which may be applicable in your area.

### Shipping Information

When specific shipping information is NOT given by the customer, we will make every attempt to ship best way.

### Returned Goods

To save transportation charges, and facilitate handling of merchandise upon our receipt, we request that no merchandise be returned without prior written authorization.

### Damaged Goods

Merchandise given to a transportation firm is their responsibility to deliver in satisfactory condition. If merchandise is delivered damaged, the customer should note as such on freight bill and file a claim with the delivering carrier. Regulations require that hidden damage, identified upon unpacking, must be reported within ten (10) days of delivery in order to file a proper claim.

### Liability/Warranty Statement

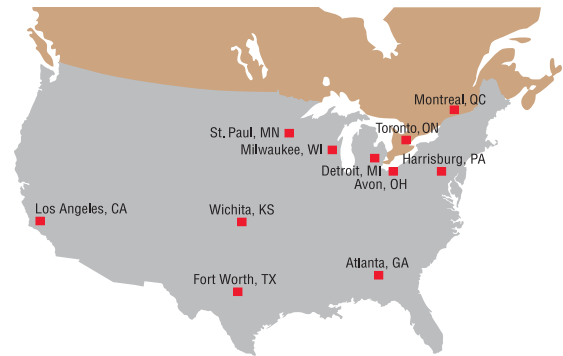
Our products are intended for sale to industrial and commercial customers. We request that customers inspect and test our products before use and satisfy themselves as to contents and suitability. Nothing herein shall constitute a warranty, expressed or implied, including any warranty or merchantability or fitness, nor is protection from any law of patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is replacement of our materials and in no event shall we be liable for special, incidental, or consequential damages.

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**FREEMAN MANUFACTURING & SUPPLY CO.**  
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## Freeman Has Eleven Strategic North American Locations and Worldwide Distribution



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### California

I M C Distribution  
15147 Don Julian Road  
City of Industry, CA 91746  
TEL 800-325-2100  
FAX 440-934-7200

### Pennsylvania

909 Strickler Road  
Mt. Joy, PA 17552  
TEL 800-631-4230  
TEL 717-653-5300  
FAX 717-653-7372

### Georgia

Shippers Warehouse of Georgia  
9250 S. Main St.  
Jonesboro, GA 30236  
TEL 800-445-0811  
FAX 440-934-7200

### Ontario

Voyageur Distribution  
3600B Laird Road, Unit 4  
Mississauga, ON L5L 5Y7  
TEL 800-345-9259  
FAX 586-774-101

### Kansas

Garvey Warehouse  
5755 S. Hoover Rd., Bldg. #5  
Wichita, KS 67215  
TEL 800-792-1047  
FAX 817-568-0908

### Quebec

13475 boul Pitfeild  
Montreal, QC H4S 1H3  
TEL 800-263-7699  
TEL 514-335-3530  
FAX 514-335-3225

### Michigan

27655 Groesbeck Hwy.  
Roseville, MI 48066  
TEL 800-345-9259  
TEL 586-774-1210  
FAX 586-774-1019

### Texas

3152 S.E. Loop 820  
Fort Worth, TX 76140  
TEL 800-792-1047  
TEL 817-551-7301  
FAX 817-568-0908

### Minnesota

Professional Warehouse  
2117 Charles Ave.  
Saint Paul, MN 55114  
TEL 800-558-0866  
FAX 262-789-5407

### Wisconsin

16910 W. Cleveland Ave.  
New Berlin, WI 53151  
TEL 800-558-0866  
TEL 262-789-9800  
FAX 262-789-5407