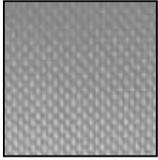


COMPOSITE MATERIALS

STANDARD E-GLASS FIBERGLASS CLOTH

CM

Fiberglass cloth is exactly what the name says - glass. Fine fibers are spun from molten glass marbles, gathered into yarn and woven into a strong, supple glass fabric. It can be folded, rolled or draped, like any other loosely woven fabric - but it can be chemically transformed into solid sheets of tremendous strength. All the fiberglass fabrics listed below are volan treated for maximum strength and resistance to moisture and abrasion. They feature a weave that is tight enough for high strength, yet open enough for thorough wetting by resins.



1.45 oz./sq. yd. Lightweight Industrial Cloth used in Osprey and other designs. Widely used by model builders, known as "Deck Cloth", Thread Count 60 x 47.
#1080 (P/N 1080-50) 50" Width..... **\$6.80 yd**



3.16 oz./sq. yd. Lightweight Industrial Cloth with aerospace applications. Excellent for model building. Only .004" thick. Crowfoot weave, which contours nicely. Thread Count 60 x 58. Breaking Strength 125 x 120 lb./in. Finished Weight 3.08 oz./sq. yd.
#120 (P/N 120-38) 38" Width..... **\$9.95 yd**



3.74 oz./sq. yd. Light weight Boat or Tooling Cloth. Tight plain weave. Thread Count 24 x 22. Breaking Strength. 160 x 135 lb./in. Finished Weight 3.60 oz./sq. yd. Thickness .0055"
#1522 (P/N 1522-50) 50" Width..... **\$7.50 yd**



5.79 oz./sq. yd. Lightweight Boat Cloth. Flat weave, not twisted. Thread Count 18 x 18. Breaking Strength 250 x 225 lb./in. Finished Weight 5.85 oz./sq. yd. Thickness .010".
#3733 (P/N 3733-60) 60" Width..... **\$6.95/yd**



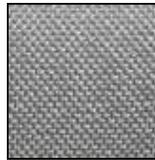
5.85 oz./sq. yd. Lightweight Boat or Tooling Cloth. Plain Weave. Thread Count 18 x 18. Breaking Strength 250 x 250 lb./in. Finished Weight 5.64 oz./sq. yd. Thickness .009" as used on KR Aircraft.
#7533 (P/N 7533-60) 60" /Width..... **\$12.50 yd**



8.5 oz./sq. yd. Lightweight boat or tooling cloth. Threads per inch: 18L x 18W. Used in Osprey aircraft and other homebuilts.
#7520 (P/N 7520-50) 50" width **\$11.85 yd**



8.95 oz./yd² Medium Weight Standard Industrial Cloth. 8 Harness Satin. Thread Count 57 x 54. Breaking Strength 350 x 330 lb./in. Finished Weight 8.95 oz./sq. yd. Thickness .009 mils. Sold by the yard.
#7781 50" Width (P/N 7781-50) **\$11.65 yd**
#7781 60" Width (P/N 7781-60)..... **\$14.50 yd**



9.66 oz./sq. yd. Heavy Weight Boat or Tooling Cloth. Plain Weave. Thread Count 16 x 14. Breaking Strength 450 x 410 lb./in. Finished Weight 9.40 oz./sq. yd. Thickness .014".
#7500 (P/N 7500-60) 60" Width..... **\$12.65 yd**

S-GLASS



The chemical formulation of S-glass differs from that of standard E-glass. Examples of E-glass are found in the Standard Fiberglass Cloth section of this catalog. S-glass is 30% stronger and 15% stiffer than E-glass and retains these properties up to 1500° F. S-glass is also considerably tougher than an equivalent E-glass. Other styles are available on request. Sold by the yard.

Specifications: • Style #: 4533 • Weight (Oz./Sq Yd.): 5.8 • Width: 60" Thickness: .009" • W x F: 18 x 18 • Weave: Plain
P/N 4533-60 **\$24.75/yd.**



GLASS MAT

100% Fiberglass in a non-woven state. It is used for bulk "build-up" in molding and fabricating components. Also useful for filling holes and badly damaged parts. 1.5 oz. Weight. 38" Width.

Note: Pricing is sold per yard.
P/N 01-06500 **\$6.50/Yd**



KNITTED E-GLASS FABRIC

Knitted fabrics are a relatively new format in composites. The performance of the glass is greatly enhanced by removing the interstices of the woven fabric and the crimped condition. E-glass in woven goods normally has 22,000 PSI tensile strength. Layered nonwoven goods give 27,000 PSI which is about a 20% improvement. Knitted glass offers greater ease of fabric orientation and saves time over multi-layered wet lay-ups.

Part No.	Weight/sq yd	Width	Ply Thickness	Price/yd
Biaxial - Double Bias +/-45°				
01-00640	17.6 oz	50"	17.0 mm	\$9.50

NOMEX HONEYCOMB



AHN 7800 is an Commercial Grade Nomex honeycomb particularly suited for use where resistance to corrosive attack and moisture are important. This material exhibits good strength characteristics and is fire resistant. It is available in a variety of cell sizes and densities to suit most purposes.

Typical applications include light-weight non-structural bulkheads for ships, joiner panels, shelters, antennas, and auto body panels. This material is not intended for aircraft or aerospace applications. This material also exhibits good thermal insulation properties and also has good dielectric properties. This honeycomb is easily machined, formed, and shaped and well suited to adhesive bonding.

Description	Part No.	Price
Honeycomb 1/8" Thick, 1/8" Cell 4' x 8'	01-00487	\$205.95
Honeycomb 1/8" Thick, 1/8" Cell 4' x 4'	01-00489	\$102.98
Honeycomb 1/4" Thick, 1/8" Cell 4' x 8'	01-01052	\$346.00
Honeycomb 1/4" thick, 1/8" Cell, 4' x 4'	01-01564	\$177.75
Honeycomb 1/8" Thick, 3/16" Cell, 39" x 108"	01-01572	\$165.75
Honeycomb 1/8" Thick, 3/16" Cell, 39" x 54"	01-01573	\$82.00
Honeycomb 1/8" Thick, 1/4" Cell, 39" x 108"	01-01574	\$247.00
Honeycomb 1/8" Thick, 1/4" Cell, 39" x 54"	01-01575	\$125.95

COMPOSITE MATERIALS

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RUTAN FIBERGLASS CLOTHS



01-00641

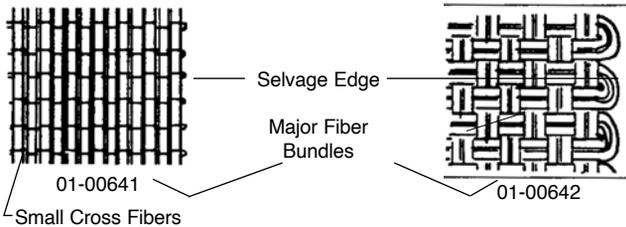


01-00642

The most basic structural material in building a composite aircraft is glass cloth. The use of glass in aircraft structures, particularly structural sandwich composites, is a recent development. Glass cloth is available commercially in hundreds of different weights, weaves, strengths and working properties. Very few of these, however, are compatible with aircraft requirements for high strength and light weight. Even fewer are suitable for the hand-layup techniques developed by Burt Rutan for the homebuilder. The glass cloth featured here has been specifically selected for the optimum combination of workability, strength and weight. Two types of glass cloth, a bi-directional cloth (RA7725BID) and a uni-directional cloth (RA7715 UND) are used. BID cloth has half of the fibers woven parallel to the selvage

edge of the cloth and the other half at right angles to the selvage, giving the cloth the same strength in both directions. UND cloth has 95% of the glass fibers woven parallel to the selvage, giving exceptional strength in that direction and very little at right angles to it. BID is generally used for pieces which are cut at a 45° angle to the selvage, a bias cut, which enables the builder to lay BID into contours with very little effort and provides the needed shear and torsion stiffness for flying surfaces. UND is used in areas where the primary loads are in one direction, such as wing skins and spar caps. Multiple layers of glass cloth are laminated together to form the aircraft structure. Each layer of cloth is called a "ply".

Unidirectional 7 oz. 38" Width Threads per inch: 80L x 18W
P/N 01-00641...\$11.50 Lineal Yd.
Bidirectional 8.8 oz. 38" Width Threads per inch: 54L x 48W
P/N 01-00642.....\$9.50 Lineal Yd.



Quantity Discount: 15% on 500 Yds or more. Yardage must be on one fabric for discount, not combined. Discount on larger quantities quoted on request.

PRECISION SCISSORS



Experience easy, comfortable, and accurate cutting with the Precision Scissors. The extra-large handle fits up to 3 fingers in one loop to help provide more strength and comfort in the cut. Symmetrical handles also fit both left and right-handed users.

Features: Straight-edge blades easily slide through the fabric and are sharpened to the tip for smaller or appliqué cuts, OLFA's unique special honing process helps the blades grab the fabric and cut cleanly, with no material folding over the blades - even when cutting left-handed, Precision engineering, blades fully extend into the handles for durability and better cutting stability and pressure distribution, The professional quality rivet secures blade positioning for exceptional accuracy and retains smooth blade movement, even in heavy-use environments, Straight blades made of stainless steel (Blades are not serrated), Good for cutting stitchwork, thread, cloth, leather, fabrics, films, sign and graphics material, vehicle wraps, and more

P/N 01-01186\$21.50

BIDIRECTIONAL WOVEN KEVLAR - 120



Kevlar® 49 aramid fiber was introduced commercially in 1972 and is the Du Pont registered trademark for its new high strength, high modulus organic fiber. It combines high tensile strength (43,000 PSI) and high modulus (19 million PSI) with light weight and toughness superior to other reinforcing fibers for plastics. It is available in yarns and rovings which meet all FAA requirements for flammability. It

shows no degradation in jet fuel, lubricating oils, water, salt water or high humidity. At cryogenic temperatures (-320°F.) performance is excellent with essentially no embrittlement or degradation of fiber properties. Kevlar 49 can offer both a significant weight saving and improved stiffness versus glass in addition to superior vibration damping and good impact resistance. A kayak made with Kevlar 49, for example, weighs about 18 pounds while the weight of a comparable boat made with glass would be over 30 pounds. The advantages over glass in small aircraft are similar - weight savings and improved impact resistance. Kevlar 49 is used in a number of parts on the Lockheed L-1011 because of weight savings of up to 30% compared to similar parts made of glass. One unusual benefit of Kevlar is its "quietness". A cowling made of Kevlar will be quieter and less sensitive to engine vibrations than its glass or graphite counterpart.

Although all of the processes used in combining resins with glass fiber are adaptable to Kevlar 49 with little or no modification. The vinyl ester-type system is compatible, but the use of polyesters is not recommended because of poor bonding with Kevlar. The epoxy resin systems featured in this catalog are compatible with Kevlar 49 and have good wetting characteristics.

Kevlar 49 is stocked in three different fabric styles. Kevlar #120 is a very lightweight fabric, while #281 and #285 are identical except for the weaving pattern. Other weights and weaves of Kevlar are available on a special order basis. Be sure to specify the Kevlar style when ordering.

oz./ Sq.Yd.	Weight Width	Thickness	W x F	Weave	Breaking Strength Lbs/Inch	
					Warp	Fill
1.8	38"	.0035"	34 x 34	Plain	260	250

P/N 01-38100...\$43.60 Lineal Yd.

Quantity Discount: 10% on 25-50 Yds. %; 15% on 50-100 Yds.; 20% on over 100 Yds.

BIDIRECTIONAL WOVEN LUMAT ARAMID - 4 HARNES SATIN WEAVE 1500d



Unit of Measure	Linear Yard
Material Warp	Aramid
Material Weft	Aramid
Weave	4 Harness Satin
Ends Per Inch	13
Pics Per Inch	13
Yarn Size Warp	1500d

Yarn Size Weft	1500d
Tow Size	1500d
Weight	5oz/170gsm
Width	50"/127cm
Thickness	
Resin Consumption @ 45% Resin to Fabric by Weight	4.09opsy/137gsm

P/N 01-01665...\$37.85 Lineal Yd.

INDUSTRIAL FABRIC SHEARS



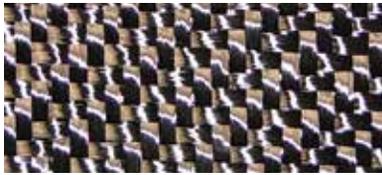
Wiss No. 20W heavy-duty shears, ideal for cutting fiberglass cloth and all fabrics. Hot drop-forged steel.

Right Hand Shears.....P/N 01-00397\$46.75
Left Hand ShearsP/N 01-00398\$46.50

CARBON GRAPHITE

CM

BIDIRECTIONAL WOVEN CARBON GRAPHITE



282

Woven graphite is a fabric introduced in recent years which has become an excellent alternative to fiberglass and Kevlar - only mils thick with great strength. In addition to its great strength, graphite fabric also has very low density and is very stiff. Although it is quite costly, the material saving is appreciable since only one course of graphite is required for 3 or 4 of fiberglass. It cuts considerably easier than Kevlar. Graphite The excellent qualities of the graphite fabric itself give it an immediate waiting market in the aircraft building field. Graphite fabric is stocked in the three different styles shown below. Other weights and weaves of graphite are available on a special order basis. Be sure to specify the graphite style when ordering. These carbon graphite cloths are not pre-preg fabrics. * Warning folding for shipment can damage the filaments in the fabric. Folding will be done at customers' risk and request only.

CARBON FIBER - Plain Weave - Style 282

Part No.	Weight oz./Sq Yd.	Width	Thick-ness	W x F	Tensile Strength (KSI)	Price /yd.
01-00971	5.8	50"	.007"	12.5x12.5	675	\$29.95
01-28260	5.8	60"	.007"	12.5x12.5	675	\$35.85

TWILL - 2 X 2 WEAVE - Style 284

Part No.	Weight oz./Sq Yd.	Width	Thick-ness	W x F	Tensile Strength (KSI)	Price /yd.
01-00602	5.7	50"	.007"	12X12	675	\$30.65
01-01232	5.8	60"	.007"	12X12	675	\$36.50



STANDARD E-GLASS & FIBERGLASS TAPES

Tapes are woven from 8.7 oz./sq. yd. fiberglass cloth, .012" thick, into narrow widths with non-raveling selvage. Perfect for glassing seams, corners, edges fan for repair jobs. Sold in 50 yd. rolls.

- 1" Width 26 Warp, 17 FillP/N 01-06610 ... Roll **\$43.99**
- 2" Width 40 Warp, 17 FillP/N 01-06600 ... Roll **\$43.80**
- 3" Width 58 Warp, 17 FillP/N 01-06700 ... Roll **\$68.75**
- 4" Width 76 Warp, 17 FillP/N 01-06705 ... Roll **\$61.75**
- 6" Width 106 Warp, 17 FillP/N 01-06710 ... Roll **\$106.75**
- 12" Width 218 Warp, 17 FillP/N 01-06720 ... Roll **\$139.80**

UNIDIRECTIONAL CARBON 50K



Carbon Fiber Fabric Unidirectional 50k 200gsm/ 5.9oz 50" Zoltec PX35 Fiber.
Specifications:
 • Tensile Strength: 600ksi • Tensile Modulus: 35msi • Electrical Conductivity: 0.00061 ohm-in • Density: 0.065 lb/in3 • Fiber Diameter: 0.283 mils • Carbon Content: 95% • Yield: 397 ft/lb • Spool Weight: 12 lb, 24 lb • Spool Length: 1640yd, 3280yd...P/N 01-01609**\$34.75**

UNIDIRECTIONAL CAP FIBERGLASS TAPE



This 54 Yard roll of woven unidirectional tape consists of a plain weave construction with at least 80% of the fabric weight in the 0° or Warp direction.

This unidirectional tape can be used instead of unidirectional fabric for spar caps, wings and elevators. Contours well and cuts building time considerably. May be used with either polyester or epoxy systems. Used on Polliwagen. Long-EZ, Cozy. Adventure and applicable to all composites. • Fiber: E-Glass Fiberglass • Product Type: Woven Tape • Construction: Unidirectional • Density: 850 g/m2 • Width: 3" (75 mm) • Length: 54 Yards • Finish: Silane.....P/N 01-01651**\$98.00**

UNIDIRECTIONAL CARBON FIBER FABRIC 50



Intermediate Modulus Hexcel IM2 UNI Directional Carbon Fiber Fabric/Cloth 12k 5.7oz/193gsm. This fabric has a tow size of 12k and is a UNI Directional Fabric.

Fiber type - Fiber type available is a Hexcel IM2 12k Intermediate Modulus Fiber. This yarn is smaller in size than a standard 12k yarn and visually replicates the look of a standard strength 6k carbon fiber yarn while offering over a 60% increase in tensile strength and reducing the weight in almost half. Pound for pound the IM2 offers a material approximately 2.5 times stronger than a standard carbon fiber yarn. Note: To harden the raw fabric into a usable form, you will need the appropriate resin or epoxy for your project. 50" WideP/N 01-01664 **\$39.50/Yd.**

offering over a 60% increase in tensile strength and reducing the weight in almost half. Pound for pound the IM2 offers a material approximately 2.5 times stronger than a standard carbon fiber yarn. Note: To harden the raw fabric into a usable form, you will need the appropriate resin or epoxy for your project. 50" WideP/N 01-01664 **\$39.50/Yd.**

CARBON FIBER TUBING



Aircraft Spruce offers structural tubing and structural torsion tubing, engineered and built to meet your exact specifications and tolerances. Structural Torsion Tubing, in continuous lengths up to 40', is manufactured with the computer-controlled, fully-automated Helical Winding Process. We offer a broad array of Fiber Options and tubing wall thickness and diameter is determined on a case-by-case basis to suit your application.

Special Order Sold in 10 ft. lengths only (can cut for UPS shipment).

*The image shows two types of finish on this product. The standing tube is sanded and painted with a gloss finish. This is available for an additional cost of **\$273.95**. The tube lying on its side is a rough surface, which will be received when product is purchased.

D of Tube	Wall Thickness	Length	Part No.	Price
0.5"	.100	10'	03-00171	\$458.00
0.75"	.100	10'	03-00172	\$458.00
1.00"	.120"	10'	03-00173	\$357.95
1.25"	.120"	10'	03-00174	\$515.00
1.5"	.120"	10'	03-00175	\$414.95
1.75"	.120"	10'	03-00176	\$565.00
2"	.120"	10'	03-00177	\$464.95
2.5"	.120"	10'	03-00178	\$720.00
3"	.120"	10'	03-00179	\$689.99

CARBON GRAPHITE YARN TOW



High strength (470,000 PSI) carbon fibers are used as reinforcement in high performance structural composites for aircraft applications, recreational and industrial products. Carbon

fiber filaments are finer than a human hair. These filaments are bundled together to make a fiber of 3,000, 6,000 or 12,000 filaments which is called a "tow". The tow is sized with an epoxy compatible material to improve the handling characteristics. It is then wound on a cardboard core holding from 4 to 6 pounds of fiber. 1 Lb. spool.

It appears that the 6K tow will prove most practical for homebuilding applications. This size will be available in the small units shown. The 3K and 12K sizes are offered in full spools only. The 3K tow is used primarily by weavers. The 12K is difficult to wet out but can be done by diligent brushing.

Actual Size	Part No.	Approx. Yield	Roll Size	Price/Spool
12K Tow	01-00004	621 Yd./Lb.	2 Lb.	\$149.95
12K Tow	01-00345	621 Yd./Lb.	4 Lb.	\$298.95

UNIDIRECTIONAL ARAMID - TWARON ROVING



ROLL Unidirectional Aramid fiber roving. This is 7500 denier, comprised of five strands of 1500 denier. Used in the popular geodesic dacron kayaks and boats by Platt Monfort, this roving has a wide variety of applications. **Specifications:** • Material: 1500 denier Twaron (aramid), 5 ends (7500 denier total) • Type: 1000 • Yield: 567 yards/pound (0.588

lbs/1000ft) • Elongation: 3.5%* (each end) • Break: 79 lb. +- 6.25%* (each end)P/N 968**\$46.50**

EPOXY LAMINATING SYSTEMS

CM



MVS-610 EPOXY RESIN LOW VISCOSITY INFUSION SYSTEM

MVS-610 is a very low viscosity epoxy resin intended for the vacuum-assisted resin infusion process. Two hardeners are listed here with different gel times for a variety of part sizes. The mixed viscosities of these two systems are very low, and result in rapid infusion in even the most dense fiber stacks. This feature is very desirable in production applications, allowing quick turnaround for increased production. The MVS-610 System is ideal for quickly producing a variety of parts and shapes that offer very good cured properties and long term stability.

Description	Quantity	Pot Life	Part No.	Price
MVS-610 Resin	Gallon	--	01-01654	\$86.75
MVS-615 Hardener	Quart	30 mins	01-01655	\$45.50
MVS-620 Hardener	Gallon	2 hour	01-01656	\$45.50
MVS-610 Resin & MVS-615 Hardener Kit	Gallon	-- / 30 mins	01-01657	\$136.85
MVS-610 Resin & MVS-620 Hardener Kit	Gallon	-- / 2 hour	01-01658	\$138.75

SYSTEM THREE QUIKFAIR EPOXY FAIRING PUTTY



Lightweight, micro ballooned filled, fast curing 2-part epoxy fairing putty with excellent moisture resistance. Use on both fiberglass and wood epoxy structures above or below the waterline. At 70° F it is sufficiently cured to be hand sanded in 3 hours or machine sanded in 4 hours. This allows you to apply 3 coats in a standard 8 hour shift or 6 in a round the clock basis. Complete a fairing or filleting job in a day rather than 3 or 4 days. **Note:** QuikFairs warm butter-like consistency makes it easy to measure by weight. Use care when measuring by volume as QuikFair does not self-level and may trap air pockets. As QuikFair is fast curing the working time is short. Mix no more than can be applied within 10 minutes.

24 oz. Kit	P/N 01-00404	\$41.95
1-1/2 qt. Kit	P/N 01-00405	\$59.90



EPOXY PREMIUM PIGMENTS

These Premium Pigments are a paste to tint polyester, vinyl ester, epoxy resin, and polyurethane. Add about 6% to 8% of pigment by weight or 1/2 pint of pigment per gal. of resin.

White - 1 oz.	P/N 01-45308	\$6.50
White - 8 oz.	P/N 01-45501	\$21.65
Black - 1 oz.	P/N 01-45319	\$6.50
Black - 8 oz.	P/N 01-45512	\$24.80

IMPACT RESISTANT LAMINATING EPOXY



DLRH-3212 is an unfilled, clean epoxy resin system with a long pot life. DLRH-3212 is a tough, strong, impact resistant resin with chemical resistance. It has excellent wetting quality on kevlar, carbon graphite and fiberglass cloth. Used extensively in construction of aircraft, race cars, motorcycles, helmets and sports equipment. Mixing Ratio by Wt: 100:30; Pot Life (200 Gm MASS) 60 Min; Tensile Strength @ 25 C 12,500; Flexural Modulus @ 25 C 40,900; Heat Deflection 325 F; Thermal Shock 72°F-125°F; Shore "D": 80, Density: Resin: 9.7, Hardener: 7.9, Mixed: 9.1; Shelf Life: Resin/Hardener 1 Year.

Quart Kit	P/N 01-00430	\$79.75
Gallon Kit	P/N 01-00431	\$199.85
5 Gallon Kit	P/N 01-00432	\$835.00

JEFFCO EPOXY LAMINATING SYSTEM



1307 Low Viscosity Resin / 3102 Fast Hardener - 100% solids 2-component epoxy laminating system with excellent wet out, low viscosity and high strength. Very low odor and toxicity. Easy to use, 4:1 weight or volumetric mixing, safe, fast curing products for a variety of use applications. Used for fast curing, penetrating wood coatings, adhesives and sealers, fiberglass laminating and microsphere filled fairing compounds. Excellent cold temperature cures down to 40°F. No solvents or VOC's. Non-hazardous, non-corrosive hardener.

3176 30-minute Medium R/T Epoxy Hardener - Fast setting, even in thin films. Good low temperature cure. Fast wetting of fiberglass reinforcements. Easy to use 4:1 mix ratio. High HDT at room temp, increasing with post cure. Low toxicity, very low odor. Non-hazmat.

Low Viscosity Laminating Resin

1307 LV, Pail (40 lbs)	P/N 01-07917	\$625.00
1307 LV, Gallon (8 lbs)	P/N 01-07914	\$124.95

Fast Hardener

3102, Pail (40 lbs)	P/N 01-07920	\$625.00
3102, Gallon (8 lbs)	P/N 01-07918	\$139.95
3102, Quart (2 lbs)	P/N 01-07915	\$45.50

Medium Hardener

3176, Pail (40 lbs)	P/N 01-07921	\$619.00
3176, Gallon (8 lbs)	P/N 01-07922	\$135.95
3176, Quart (2 lbs)	P/N 01-07923	\$46.85

KITS - Jeffco Epoxy, 1 gal. kit, fast	P/N 01-07916	\$172.95
Jeffco Epoxy, 5 gal. kit, fast	P/N 01-07919	\$814.00
Jeffco Epoxy, 1 gal. kit, medium	P/N 01-07924	\$163.95
Jeffco Epoxy, 5 gal. kit, medium	P/N 01-07925	\$795.00

AEROPOXY PT2712 VACUUM INFUSION EPOXY



PT2712 is a low viscosity epoxy system designed for the fabrication of parts and structures by the resin infusion method. This system flows extremely well, and produces dense, void-free laminates routinely. The cured properties of this system are very high, so it produces items with good strength and toughness with excellent long-term stability. Three hardeners are available for use with this resin, which provide a range of working times. The hardeners have gel times of approximately 1 hour, 2 hours and 3 hours, so, by proper selection between the three, it is possible to easily infuse any size structure. The three hardeners are identical except for reaction time, so no matter which hardener is chosen, the user can expect the same high performance properties. The mixed viscosity with all three hardeners is just over 300 centipoise, so the material flows very well, even in thin walled areas. It penetrates heavy fabric sections and wets out quickly for further ease of production.

Description	Quantity	Pot Life	Part No.	Price
PT2712 with Part B	1 Gallon	70 Minutes	01-01587	\$223.75
PT2712 with Part B	5 Gallons	70 Minutes	01-01590	\$625.00
PT2712 with Part B1	1 Gallon	122 Minutes	01-01588	\$194.85
PT2712 with Part B1	5 Gallons	122 Minutes	01-01591	\$565.50
PT2712 with Part B2	1 Gallon	175 Minutes	01-01589	\$143.85
PT2712 with Part B2	5 Gallons	175 Minutes	01-01592	\$617.00
PT2712 with Part B3	1 Gallon	40 Minutes	01-01593	\$169.75
PT2712 with Part B3	5 Gallons	40 Minutes	01-01594	\$617.00

FIRE RETARDANT LAMINATING EPOXY KITS



The epoxy systems in this group are highly engineered products designed to meet or exceed the requirements of the various flame retardant specifications for which they were developed. They are filled laminating compounds that have good handling characteristics and provide very high physical properties in addition to their excellent fire retardant capabilities. They are well suited to a wide variety of production and tooling applications where the combination of very good physical properties and outstanding flame retardant abilities will provide durable parts and tools. PT2475 is a filled, off-white epoxy laminating system designed for use in constructing fire retardant laminates for parts or reinforcements. PT2475 meets the requirements of the FAR 25.853 Specification. This system has a 1 hour pot life at normal ambient temperatures, which will allow the construction of larger laminated than would be possible with a faster material. The system cures well at room temperature, and the cure can be accelerated with the addition of mild heat if desired.

Gallon	P/N 01-01517	\$231.95
5 Gallons	P/N 01-01518	\$949.00

EPOXY LAMINATING SYSTEMS

CM



POLY EPOXY STRUCTURAL EPOXY SYSTEM

Poly Epoxy is a true high-performance epoxy resin with unmatched tensile, compressive, and flex strengths. It also has unbeatable peel, shear, and fatigue resistance, as well as impact strength and fracture behavior. It's great for wings, canards, fuselages, tail feathers, and landing gear. Use it in molds or moldless construction. It parts easily and works beautifully in vacuum bagging. (Avoid silicone-treated peel ply.) It has TWO cure phases, while all other resins—epoxy, polyester, or vinyl-ester—have just one. The two phases occur all by themselves during the curing process. The resulting bond is tougher and stronger than any other.

Poly Epoxy Kit, Quart.....P/N 01-07905..... **\$48.50**
 Poly Epoxy Kit, Gallon.....P/N 01-07906..... **\$176.95**
 Poly-poxy Resin Gallon.....P/N 01-07934..... **\$120.95**
 Poly-poxy Hardener Quart.....P/N 01-07935..... **\$59.95**
 Poly-poxy Hardener 40 Gallon.....P/N 01-07933..... **\$3,847.00**

POLY EPOXY TECHNICAL DATA

Mechanical Properties:	w/Post Cure	w/o Post Cure
Tensile Strength, PSI	9600	8800
Elongation at Break, %	7.5	3.6
Tensile Modulus, PSI	470,000	460,000
Flexural Strength, PSI	19,000	14,500
Flexural Modulus, PSI	515,000	500,000
Compressive Strength, PSI	32,000	33,000
Shore D Hardness	82	70
Glass Transition Temp., °C	72	62
Heat Distortion Temp., °C	64	50
Water Immersion Weight Gain, % (140 °F, 30 days)	2.8	2.9

Rheology: Mixing Ratio: 3 parts Resin to 1 part Converter by Weight 10 parts Resin to 4 parts Converter by Volume

Kinetics:

Pot Life, 100 grams..... 105 mins 1 quart.....75 mins
 Mold Open Time.....3-4 hrs Tack Free Time.....5-6 hrs

AVAILABLE EXCLUSIVELY FROM AIRCRAFT SPRUCE



ALPHA POXY NON-STRUCTURAL EPOXY SYSTEM

AlphaPoxy is a low-cost flexible epoxy system that is ideal for laying up non-structural parts like wheel pants, or fairings. Because it is flexible, we don't recommend it for structural applications, such as fabricating load-bearing structural aircraft parts. Use PolyEpoxy for these applications. This is a low-viscosity system specifically formulated for filling with microballoons, cotton floc, or milled glass fibers to make slurries. It was designed for maximum sandibility; when cured, it is soft enough to be easily cut with sandpaper smoothing a breeze. AlphaPoxy is also excellent when used as a final filler resin over structural parts when an epoxy gel coat is called for. You can use it in place of polyester resins for a much more durable part at a very attractive price.

AlphaPoxy Kit, 1-1/4 Gallon.....P/N 01-07911..... **\$122.95**
 AlphaPoxy Hardener, Gallon.....P/N 01-07909..... **\$73.75**
 AlphaPoxy Resin, 7/8 Gallon.....P/N 01-07912..... **\$86.00**
 AlphaPoxy Hardener, 5 Gal. pail.....P/N 01-07910..... **\$370.95**
 AlphaPoxy Hardener, 3/8 Gallon.....P/N 01-07908..... **\$37.75**
 AlphaPoxy Resin, 5 Gal. pail.....P/N 01-07913..... **\$430.95**

Rheology: Mixing Ratio:
 2 parts Resin to 1 part Hardener by Weight

AVAILABLE EXCLUSIVELY FROM AIRCRAFT SPRUCE

AEROPOXY PT1105 EPOXY SURFACE COAT



PT1105 is a white, general purpose room temperature epoxy surface coat resin. The creamy, smooth consistency of the mixed material allows easy application to the model surface with minimum drag. The thixotropic properties of PT1105 permits good coverage on points and sharp corners, and application to vertical surfaces without sagging. Due to the non-galling nature of PT1105, it will give good service in a variety of metal forming applications. When used with Part B hardener, the PT1105 system will cure quickly, and can be sanded or filed in 10 to 12 hours. The cured material is tough, with good chip resistance on edges and sharp details. PT1105 works very well in the fabrication of plastic faced plaster patterns when used with PT1105 B1 hardener.

Quart Kit.....P/N 09-05263..... **\$66.75**
 Gallon Kit.....P/N 09-05264..... **\$214.95**
 Gallon Pail Kit.....P/N 09-05265..... **\$720.00**



E-Z POXY EPOXY LAMINATING SYSTEMS

In early 1996, Composite Design Co. developed E-Z Poxy to provide a replacement epoxy system for Epolite (Safe-T-Poxy) which is no longer produced by Hexcel. The E-Z Poxy series of laminating systems utilizes one resin and your choice of three hardeners for varying pot life and viscosity requirements. The E-Z Poxy systems offer the same handling and physical properties as the discontinued Epolite systems including ease of use, long pot life, rapid cure for demold or process continuation, and superior room temperature curing properties. Excellent for use in sport aviation, marine, and industrial applications.

E-Z 83 hardener is equivalent to Safe-T-Poxy standard hardener, E-Z 84 is equivalent to Safe-T-Poxy II hardener, and E-Z 87 is equivalent to Safe-T-Poxy slow hardener. E-Z Poxy products should not be mixed with materials produced by other epoxy manufacturers.

E-Z POXY PRICE LIST

Description	Part No.	Price
E-Z Poxy 1-1/2 gal. kit* EZ 83 Hardener	01-07850	\$299.85
E-Z Poxy 5 gal. kit** EZ 83 Hardener	01-07950	\$1,375.00
E-Z Poxy 1-1/2 qt. kit EZ 83 Hardener	01-08050	\$93.85
E-Z Poxy 1 gal. resin	01-00245	\$159.95
E-Z Poxy 5 gal. resin	01-00246	\$659.00
E-Z Poxy 1/2 gal. Hardener	01-00247	\$145.80
E-Z Poxy 2-1/2 gal. Hardener	01-00249	\$592.00

* 8 lbs. resin, 3.5 lbs hardener ** 40 lbs. resin, 18 lbs. hardener

E-Z POXY TECHNICAL DATA

E-Z POXY RESIN SYSTEMS FROM COMPOSITE POLYMER DESIGN

E-Z 10 Epoxy Resin **E-Z 84 Aromatic Amine Hardener**

E-Z 83 Aromatic Amine Hardener **E-Z Aromatic Amine Hardener**

E-Z 10 Resin (Viscosity* 1500 cps @ 77F with:

HARDENER EZ 83 EZ 84 EZ 87

MIXED PROPERTIES:

Mixed Viscosity cps @ 77°F*	1300	800	1500
Viscosity Hardener cps @ 77°F*	410	140	830
Pot Life @ 77°F	2 hrs.	2 hrs.	5 hrs.
Tack Free @ 77°F	4 hrs.	8 hrs.	8 hrs.
Cure Time @ 77°F	24 hrs.	3 days	3 days
Mix Ratio by Volume	100/47	100/47	100/47
Mix Ratio by Weight	100/44	100/44	100/44

PHYSICAL PROPERTIES TG (F):

R/T	151	151	142
P/C*	196	196	196
Elongation %	3.5	3.5	3.9
Specific Gravity	1.14	1.13	1.14
Linear Shrinkage @ 23C (4 days %)	.10	.10	.10

TENSILE STRENGTH PSI

R/T	8,200	8,100	8,400
P/C	10,000	10,000	10,000
Tensile Modulus (PSI x 10 ⁻⁵)	4.8	4.2	4.0

* Viscosity may vary +/- 10% *Post Cure for 2 hrs. @ 150°F

E-Z Poxy systems provide excellent room temperature curing systems for hand layout of composite parts and tooling. The systems are designed to provide ample working time with the varied pot life options while providing a rapid finish cure. Post curing these systems will increase their physical properties as designated in the above data, however, post cure is not required.

EPOXY LAMINATING SYSTEMS

POLYESTER RESINS



Polyester resins are hygroscopic (they draw moisture from the air). There are two types of resin, and one or both types may be required, depending on the application. Type "A" resin has a small amount of wax in it, which comes to the surface and forms a barrier against the moisture. This permits the resin to cure completely and the surface is hard and easily sanded. Bond Coat "B" resin does not have any wax content. As a result

the surface stays a little tacky, as the surface cure is being inhibited by moisture. This tacky surface provides excellent adhesion between coats. Bond Coat resin is therefore recommended for the first coat of resin to fill the weave of the glass cloth, for bonding fiberglass cloth to plywood or other surfaces and for multi-layers of glass cloth.

TYPE "A" RESIN - #1520-5 is a general purpose ortho surfacing resin intended for the finishing coat applied over the Bond Coat #1063-5, or for single coat application. A second coat may be applied after full cure and thorough sanding but is not recommended.

Polyester Resin #692 Quart P/N 01-00346 **\$45.80**
5 Gal. #1520-5 with 4 oz. Catalyst P/N 01-00348 **\$318.95**
Additional catalyst may be required. 2 oz... P/N 01-01119 **\$4.95**

SURFACE CURING AGENT is used in polyester resin to improve sanding properties. Added to #1063-5 Bond Coat or #6060-5 Isophthalic, it will provide same sanding properties as in Type "A" Surfacing Resin. Use in proportions of 2 oz. per Gallon of resin. Surface Curing Agent is used in addition to catalyst.

4 oz. in Polyethylene Dispenser Bottle P/N 01-07100 **\$15.90**
Pint (16 oz.) in Polyethylene Dispenser Bottle... P/N 01-07200 **\$27.50**
Gallon (128 oz.)..... P/N 01-07300 **\$96.75**

TYPE "B" RESIN - #L253T-20 is a general purpose bond coat ortho resin for use in making multi laminates. It will not cure to a high gloss finish. Use 1520-5 for finish coat to obtain smooth, hard gloss finish. Replaces #1063-5.

1 Gal. #L253T-20 with 1 oz. Catalyst..... P/N 01-00349 **\$60.70**
5 Gal. #L253T-20 with 4 oz. Catalyst..... P/N 01-00350 **\$214.95**
Additional catalyst may be required.

Same catalyst used for #1520-5 and #L253T-20.

Note: Use #1520-5 finish coating over #L253T-20 but never use #L253T-20 over #1520-5.

Above resins are not for use in making fuel tanks. For fuel tanks (except those for gasohol) use #6060-5 Isophthalic Resin.*

Additional catalyst may be required.

Catalyst same as for resins listed above.

* Iso Resin is highly flexible. Has excellent adhesion to metal, wood, concrete, fiberglass and other "hard-to-adhere" surfaces. Compatible with most fuels. Iso is a wax-free resin and must be over-coated with Type "A" Surfacing Resin to obtain a surface cure.



MEKP NORAC CATALYST

MEKP Norac Catalyst is the catalyst added to polyester resins and vinyl ester resins. As the catalyst mixes with the resin, a chemical reaction occurs, creating heat which cures the resin. Use approx. 1/2 oz per quart of resin. We recommend the use of our MEKP Catalyst Dispenser for accurate measuring and pouring of catalyst.

2 oz P/N 01-01119 **\$4.95**

MGS EPOXY RESINS



MGS epoxy resins are approved for the production of certificated aircraft parts. The 335 and 285 systems are especially suited for homebuilders because of their long shelf lives, excellent workability, physiological friendliness, adjustable cure rates and excellent static and dynamic strength characteristics. The 285 system is available with fast and slow hardeners which can be blended with each other in any proportion to provide the desired working life and cure cycle. Pot lives and working times can be adjusted from fifteen minutes, using the fast hardeners, to six hours, when the slow hardeners are employed. Once the hardeners have been blended, the specified resin to hardener mixing ratio must be maintained. The 335 System is available only with fast hardener. Components of the 335 system should not be mixed with those of the 285 system. With both systems, if only the slowest hardener is used, the cure times should be extended to a few days, otherwise some brittleness may be noted. While room temperature curing results in good properties when the faster hardener combinations are used, some curing at elevated temperatures or post curing will result in the highest achievable strength and Tg, with the slower blends. Even unfavorable low temperature and high humidity conditions in the work environment will not affect the quality of the product and high gloss, uncontaminated, tack free surfaces are achievable every time. The resins do not contain any unreactive diluents which with many systems result in de-gassing and bubbling of the painted finish. The MGS resins do NOT contain aromatic amines. While proper processing practices should be maintained, the physiological friendliness of these systems have been demonstrated by many years of production experience. The 285 system has slightly higher physicals than the 335 and will also achieve a higher maximum Tg after post curing. While the 335 is more viscous than the 285, after mixing with the appropriate hardeners, their viscosities are comparable. MGS systems are used in the construction of the Cozy, Diamond, Cirrus and other aircraft.

System 285 (Max. Tg 105 C - 110 C; 195 F - 230 F)			
Mixing ratio Resin:Hdnr	Pot life	Mixed Viscosity@20C	
100:50 by volume	H285-F 40 min	300-500 cp	
100:40 by weight	H287-S 4 hours		
	H285 : H287		
	40 : 60 2 hours		

System 285 Prices
L285 Resin (1 Gal.) P/N 01-41000 **\$287.00**
H285F Hardener (.25 gal/1 qt.) P/N 01-41005 **\$72.75**
H287S Hardener (.25 gal/1 qt.)* P/N 01-41006 **\$105.75**

*Important Shipping Information- H287S Hardener can be shipped UPS ground only. A \$25 hazardous fee, and a \$45 box fee applies (per quart). Can also be shipped truck collect.

System 335 (Max. Tg 75 C - 80 C; 160 F - 180 F)			
Mixing ratio Resin:Hdnr	Pot life	Mixed Viscosity@20C	
100:45 by volume	H335-F 15 min	800 cp	
100:38 by weight	H340-S 6 hours	400 cp	
	H335 : H340		
	50 : 50 1.5 hours		
	20 : 80 4 hours		

System 335 Prices
L335 Resin (Gal.) P/N 01-41100 **\$243.95**
H335F Hardener (.225 gal/0.9 qt.) P/N 01-41105 **\$61.80**
H340S Hardener (Slow) P/N 01-41106 **\$59.75**

Two units of hardener are required for each Gallon of resin

VINYL ESTER RESIN



Note: 3 month shelf life from date of manufacture. We suggest ordering when you are ready to use.
Dow Chemical's Derakane 411-350 PA Vinyl Ester Resin is an epoxy-based Vinyl ester designed to provide superior toughness and high corrosion resistance. Many leading kit aircraft manufacturers use vinyl ester resins extensively due to its quality and ease of fabrication. We furnish medium "promoted" vinyl ester 411-350 PA resin which includes CONAP, DMA the resin is cured by adding the MEKP which is furnished with the kit. Gel times vary according to the amount of MEKP added and the ambient temperature. Shelf life of promoted vinyl ester resin is short at only a few months.

MEDIUM PROMOTED: Includes CONAP, DMA and other additives.
Add MEKP for complete cure: Quart P/N 01-01076 **\$73.75**
Gallon P/N 01-07350 **\$131.75**

MEKP Clear Catalyst 1 oz..... P/N 01-01110 **\$2.85**
MEKP NORAC Catalyst Only (4 oz.) P/N 01-07325 **\$5.95**
Vinyl Ester Resin 411-350PA - Quart Kit P/N 01-01109 **\$76.25**
Vinyl Ester 1-Gal. Kit (Resin & Catalyst)..... P/N 01-07355 **\$137.70**

CATALYST LARGE QUANTITY CHART

Catalyst Concentration	Resin Quantity		
	Quart	Gallon	5 Gallon
1/2%	1/16 oz.	2/3 oz.	1-1/3 oz.
3/4%	1/4 oz.	1 oz.	5 oz.
1%	1/3 oz.	1-1/3 oz.	6-2/3 oz.
1-1/2%	1/2 oz.	2 oz.	10 oz.

WARNING: Mekp Catalyst is very dangerous to the eyes. Always wear full goggle protection and have running water at hand when working with Mekp.

CATALYST SMALL QUANTITY CHART (20-30 minute pot life at 2% mix ratio)

Catalyst Concentration	Resin Quantity - 30 drops = 1 cc				
	2 oz.	4 oz.	8 oz.	12 oz.	16 oz.
1/2%	9 drops	18 drops	36 drops	1.8 cc	2.5 cc
3/4%	14 drops	27 drops	2 cc	3 cc	4 cc
1%	18 drops	36 drops	2.5 cc	3.75 cc	5 cc
1-1/2%	27 drops	2 cc	4 cc	6 cc	8 cc
2%	36 drops	2.5 cc	5 cc	7.5 cc	10 cc

Typical room-temperature properties of clear castings made with DERA KANE 411 resins

Property	DERAKANE 411-350PA
Tensile Strength, PSI.....	11-12,000
Tensile Modulus, units 105 PSI.....	4.9
Elongation, %.....	5-6
(DERAKANE 411-350).....	(7-8)
Flexural Strength, PSI.....	16-18,000
Flexural Modulus, units 105 PSI.....	4.5
Compressive Strength, PSI.....	16-17,000
Compressive Modulus, units 105 PSI.....	3.5
Compressive Deformation at Yield, %.....	6.5-7.8
Specific Gravity.....	1.12
Heat Distortion Temp., °F.....	210-220
Barcol Hardness.....	35

EPOXY LAMINATING SYSTEMS

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AEROPOXY FROM PTM&W INDUSTRIES



PR2032 is a medium viscosity, unfilled, light amber laminating resin that is designed for structural production applications. 3 hardeners are available for use with PR2032. PH3660, has a 1-hour pot life. When used with either of these hardeners, the system gives excellent wet-out of fiberglass, carbon and aramid fibers. e. AEROPOXY contains no MDA (a known liver toxin and carcinogen) and meets or exceeds current OSHA requirements for safe use. Hardener PH3665 has a longer pot life than PH3660, 2 hours, that is useful for vacuum bagging larger parts before the resin has gelled. Hardener PH3630 is intended for smaller laminates, fast repairs or additions to a primary structure. PH3630 pot life is 30 min. Hardener PH3663 is the standard production hardener for fabricating composite parts. PH3663 a 90 minute working time provides more time for construction. This hardener provides similar mixed viscosities, so handling will be basically the same, except for the different working times.

Part No.	Description	Wt. (lbs.)	Price
01-42125	1 quart PR2032 Resin	2.25	\$55.75
01-42130	1 pint PH3660 Hardener	.66	\$23.50
01-42135	PR2032/PH3660 Quart Kit	2.91	\$76.85
01-42140	3/4 Gallon PR2032 Resin	7.5	\$146.75
01-42145	1 quart PH3660 Hardener	2.0	\$59.95
01-42150	PR2032/PH3660 Gallon Kit	9.5	\$205.95
01-42155	5 Gallon PR2032 Resin	48	\$737.00
01-42160	2 Gallon PH3660 Hardener	13	\$234.95
01-42165	PR2032/PH3660 Pail Kit	61	\$970.00
01-00160	1 pint PH3630 Hardener (fast)	--	\$23.50
01-00161	1 quart PH3630 Hardener (fast)	--	\$61.85
01-00162	1 pint PH3665 Hardener (slow)	--	\$23.50
01-00163	1 quart PH3665 Hardener (slow)	--	\$61.95
09-05266	1 Pint PH3663 Hardener	--	\$21.50
09-05267	1 Quart PH3663 Hardener	--	\$59.95
09-05268	1 2.5 Gallon Pail PH3663 Hardener	--	\$265.95
09-05269	1 30 Gallon Drum PH3663 Hardener	--	\$1,976.00

Aeropoxy mixing ratio — 100:27 by weight, 3:1 by volume.

WEST SYSTEM EPOXY



WEST SYSTEM brand resins and hardeners, form a two-part epoxy system developed by Gougeon Brothers specifically for wood and composite boat construction. Rutan Aircraft Factory now recommends WEST SYSTEM epoxy for certain homebuilt aircraft applications, particularly where a moisture resistant epoxy is desired. 105 Resin is the base material on which all of the WEST SYSTEM epoxy systems are built. The resin is a clear, light amber, low-viscosity liquid. It is designed specifically to wet out wood fiber. With roller applications, it possesses excellent thin film characteristics in flowing out and is self-leveling without fish-eyeing. Its relatively high flash point makes it safer to work with than polyesters. It can be cured in a wide temperature range, then sanded and shaped. It cures quite clear so that the natural finish shines through. 205 Fast Hardener, when mixed with the 105 Resin in a ratio of 5 parts Resin to 1 part Hardener, yields a high-strength, rigid solid with excellent cohesive properties and provides an excellent moisture vapor barrier. The 105 Resin/205 Fast Hardener has a pot life of 10-15 minutes at 70°F. It is also recommended in coating applications where natural finishing is desired. Partial cure time at 70°F is 5-7 hours. 206 Slow Hardener is a low-viscosity mixture of polyamines. The 105 Resin/206 Slow Hardener has a pot life of 30-40 minutes at 70°F. It is normally used when extended time is needed for large coating and bonding applications. It is especially well suited to working in warmer climates. Partial cure time is 9 hours at 70°F.

WEST EPOXY KITS

Kit No.	Kit Size	Part No.	#105 Resin	Hardener		Kit Price
				#205 Fast	#206 Slow	
A-1	1.2 Qt.	01-08100	32 oz.	7 oz.	-----	\$78.00
A-2	1.2 Qt.	01-08200	32 oz.	-----	7 oz.	\$77.00
B-1	1.2 Gal.	01-08300	126 oz.	27 oz.	-----	\$176.95
B-2	1.2 Gal.	01-08400	126 oz.	-----	27 oz.	\$175.95
C-1	5.25 Gal.	01-08500	4.35 gal.	121 oz.	-----	\$641.00
C-2	5.25 Gal.	01-08600	4.35 gal.	-----	121 oz.	\$646.00

WEST COMPONENTS

Resin		Fast Hardener		Slow Hardener	
Part No.	Price	Part No.	Price	Part No.	Price
01-00353	\$49.99	01-00356	\$31.56	01-00359	\$30.99
32 oz.	-----	7 oz.	-----	7 oz.	-----
01-00354	\$110.78	01-00357	\$67.75	01-00360	\$66.99
126 oz.	-----	27 oz.	-----	27 oz.	-----
01-00355	\$433.00	01-00358	\$209.95	01-00361	-----
4.35 gal.	-----	121 oz.	-----	121 oz.	-----

ORDER 301/303 PUMP PACKS SEPARATELY.

301/303 PUMP PACK

Using Mini Pumps helps ensure accurate metering of resin/hardener mixture. Pumps mount directly on resin and hardener containers. One stroke from each pump delivers proper ratio of resin to hardener. Kit consists of 3 pumps for A, B, and C epoxy kits. P/N 01-00318 \$26.99

207 SPECIAL COATING HARDENER

This hardener is used where a very clear, moisture resistant natural wood finish is needed. Can be used to laminate veneers where joints will be subjected to sunlight. Improves sun resistance. Pot life: 20 min., cure solid in 9-12 hours, and maximum strength within 7 days.

.66 pint.....P/N 207-SA\$56.99
 .33 gal.....P/N 207-SB\$111.99
 1.45 gal.....P/N 207-SC\$356.00

209 TROPICAL HARDENER

This hardener is used for bonding applications in warm or humid weather or when extended working time is needed. Provides twice the working time as 206 hardener. Forms a clear, amber solid when cured. Pot life is 40 minutes, solid state in 24 hours, and maximum strength in 5-9 days.

.66 Pint.....P/N 01-00362\$51.99
 .33 Gallon.....P/N 01-00364\$108.99
 1.45 Gallon.....P/N 01-00363\$336.00

WEST SYSTEM ACCESSORY PRODUCTS

West System User Manual.....P/N 01-08750 FREE

West System 101 Handy Repair Pack - Contains 105 resin & 205 hardener plus accessories needed for small repairs..... P/N 01-08760 \$15.90

West System 501 White Pigment - use this epoxy based pigment to provide a neutral white base for the final coloring system. Mix at ratio of 1 teaspoon to 8 oz. of epoxy. 8 oz. can.....P/N 01-08775 \$24.99

West System 410 Microlight an excellent filler which provides easy workability for a variety of applications. Easy to sand and cures to a neutral tan color.
 1.7 oz.....P/N 01-08780\$26.99
 4.3 oz.....P/N 01-08785\$49.99



423 GRAPHITE POWDER

423 Graphite Powder can be mixed with WEST SYSTEM epoxy to produce a low friction coating with increased scuff resistance and durability. 423 is often used as a bearing surface, and as a coating on the bottoms of racing craft that are dry sailed.....P/N 09-00315\$32.95

WEST SYSTEM FIBERGLASS REPAIR KIT

Useful for a wide variety of fiberglass repairs, including repair of cracks, scrapes, loose hardware, gelcoat blisters, delaminated cored panels, holes, keel damage, and more. Kit contains eight pre-measured packets of 105 Epoxy Resin and 205 Fast Hardener (19.2g mixed), adhesive filler, fairing filler, mixing cups, fiberglass fabric, reusable mixing stick/applicator, syringe, two coating brushes, three pairs disposable neoprene gloves and complete handling and repair instructions. Kit 105-k.....P/N 01-01521\$49.50

PRO-SET EPOXY RESINS AND HARDENERS

Note: This is the NEW 2013 Formula. NOT compatible with original formula.

LAM-125 Resin: Low Viscosity Laminating Resin
 LAM-229 Hardener: Slow Laminating Hardener
 LAM-135 Resin: Medium Viscosity Laminating Resin
 LAM-226 Hardener: Medium Laminating Hardener
 LAM-135 Resin: Medium Viscosity Laminating Resin
 LAM-237 Hardener: Extra Slow Laminating Hardener

Description	Size	Part Number	Price
125 Resin	1 Gal.	01-01221	\$198.75
135 Resin	1 Gal.	01-01223	\$165.75
224-1 Fast Hardener	1/3 Gal.	01-01688	\$93.33
224-2 Fast Hardener	1.4 Gal.	01-01689	\$362.50
226 Hardener	1/3 Gal.	01-01224	\$109.75
229 Hardener	1/3 Gal.	01-01222	\$143.75
237 Hardener	1/3 Gal.	01-01691	\$93.33
237 Hardener	1/3 Gal.	01-01693	\$110.77
237 Hardener	1.49 Gal.	01-01210	\$304.00

ECOPOXY

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ECOPOXY UVPOXY



EcoPoxy UVPOXY Kit is high performance two part system that is commonly used for table tops, bars, wood finishes, see-through clear casting, art work, layup, and other applications requiring a clear, strong coating. It cures to a crystal clear, high build, long lasting, glass-like finish, and will not blush or sweat under high humidity conditions. UVPOXY is designed to resist yellowing caused by the sun and other ultra violet light sources.

Features: • Crystal Clear - Cures to a clear, glass-like finish • Low Odour - It's safe to use indoors, no ventilation or respiration required • UV Stable - Won't fade or yellow, your finishes will last forever! • User Friendly - Mixes at a 1:1 mix ratio, very easy to calculate amounts needed • Low Drip - Thicker viscosity ensures it does not drip onto other areas • Self-Leveling - Self-levels perfectly, making for a nice even finish every time!

Specifications: • Color: Clear (Visual) • Mix Ratio: 1:1 • Pot Life: 25-30 Minutes

Description (Metric / Approx. US)	Size	Part No.	Price
EcoPoxy UVPOXY Kit	500 mL / 1 Pt	09-04095	\$42.55
EcoPoxy UVPOXY Kit	1 L / 1 Qt.	09-04096	\$64.85
EcoPoxy UVPOXY Kit	4 L / 1 Gal.	09-04098	\$146.75

ECOPOXY FAST KIT - 1.6 GAL



Our Fast Kit is most commonly used as an adhesive or in an injection box for pultrusion. It has a pot time of just 2-3 minutes, and features a high-strength, waterproof bond to a variety of materials including wood, fiberglass, metal, glass, tile, and more.

Specifications: • Color: Yellow (Visual) • Mix Ratio: 2:1 • Pot Life: 2.5-3 Minutes.

P/N 09-04116\$211.95

POLYESTER GEL COATS



These polyester gel coats can be used as the surface of fiberglass parts layed up in molds or used in the repair of gel coat surfaces on fiberglass parts. On surface repairs, the gel coat must be sealed to fully cure. PVA can be used to seal the gel coat.

Color	Part No.	Pint Price	Part No.	Quart Price	Part No.	Gallon Price
Black	09-01668	\$46.70	09-01666	\$61.75	09-01667	\$101.80
White	09-01669	\$54.75	09-01664	\$67.75	09-01665	\$112.75
Dark Blue	09-01670	\$33.50	09-01671	\$89.95	09-01672	\$136.80
Red	09-01673	\$43.50	09-01674	\$61.75	09-01675	\$104.75
Clear	09-02159	\$45.50	09-02160	\$63.95	09-02161	\$114.99

V-NOTCHED ECOPOXY SPREADER



The perfect tool for evenly spreading EcoPoxy on large, flat surfaces. This tool gives you 3 V-notched spreading options and a flat side for scraping and cleaning.

P/N 09-05355\$1.55



ECOPOXY LIQUID PLASTIC KIT

The Liquid Plastic kit cures to a clear, UV resistant, plastic-like finish that resists scratching and yellowing. This product will not blush or sweat under high humidity conditions. EcoPoxy® is a Plant based, 100% solid, waterproof, non-toxic, non-solvent, non-conductive, epoxy system that is Certified "Green" ..P/N 09-04567\$42.65



ECOPOXY ECOTROWEL MULTI-PACKS

EcoTrowel is a high performance epoxy filler and profiling product formulated for surface repair and preparation. It is easy to mix and spread, and has a peanut-butter like consistency (contains no peanuts!). EcoTrowel is lightweight and suitable for an infinite variety of composite, architectural, industrial and art-related applications.

It can be applied to wood, concrete - even canvas - to a thickness of 1/2" without sagging or slumping. It can be easily sanded, shaped, drilled, tapped, machined, routed & remains durable for life. 25g.....P/N 09-05353\$47.95 100g.....P/N 09-05354\$96.85

ECOPOXY GLOPOXY KITS



GloPoxy is a glow-in-the-dark epoxy made with high-grade photo luminescent ingredients to maximize glow brightness and duration. The formula absorbs bright light as energy and releases the absorbed energy when placed in the dark. This charge cycle can be performed endlessly and with any light source. GloPoxy is formulated to glow-in-the-dark for hours and contains no fillers or impurities to interfere with the glow. GloPoxy is durable, UV stable, and chemical, water & abrasion resistant. It can be used indoor and outdoor, and can be applied to virtually any surface. It's a perfect solution for both safety and novelty applications.

BlueP/N 09-05348\$44.50

ECOPOXY PIGMENT COLOR SETS



Add some color to your epoxies. These are used to tint epoxy resins used as coatings, paints, gelcoats, laminating, casting or self-leveling resins. EcoPoxy epoxy concentrated pigment consist of pigments suspended in epoxy resin which allows them to blend thoroughly into epoxy resins to make very uniform colors. They are used to tint epoxy resins used as coatings, paints, gelcoats, laminating, casting or self-leveling resins. The high tinting properties enable the use of little quantities of pigment. The quantity to be used depends on the color chosen as some colors cover better than other (yellows for example need higher quantities than other colors). ECOPOXY color pigments mix easily.

60ml.....P/N 09-05349\$89.95
120ml.....P/N 09-04718\$118.95
240ml.....P/N 09-05351\$184.90

FOAM

CM



STYROFOAM – SMALL CELL

STYROFOAM FB – Low density (2 lb./ft³). Tight closed cell structure leaves no voids between the cells. The result is high compressive strength and unequalled resistance to water penetration. Has excellent resistance to bases, salts, alcohols and most acids but not to petroleum based solvents. Not for structural use.

Foam Type	Density	Thickness	Sheet Size	Part No.	Price/Sheet
Styrofoam (Blue) Small Cell	2 Lb/Ft ³	1/2"	24" x 48"	01-09400	\$16.85
		1/2"	24" x 96"	01-09500	\$33.70
		3/4"	24" x 96"	01-09600	\$24.99
		1"	24" x 48"	01-09700	\$17.95
		1"	24" x 96"	01-09800	\$35.85
		1-1/2"	24" x 96"	01-09900	\$49.85
		2"	24" x 48"	01-10000	\$42.50
		2"	24" x 96"	01-10100	\$84.85
		4"	24" x 48"	01-10200	\$66.75

POLYSTYRENE – LARGE CELL

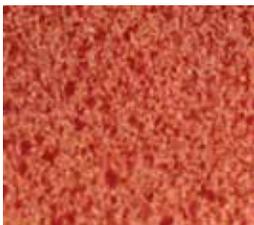
POLYSTYRENE – LARGE CELL This blue large cell expanded foam is 2 lb. per cubic feet density and cuts easily using a hot wire to airfoil shapes. Compatible with most adhesives, but should be used only with epoxies, not polyester resins. Will dissolve in fuels and solvents. Cuts smoothly with hot wire and airfoil shapes. Used in the construction of VariEze, Long-EZ, Cozy, and other composite aircraft.



Foam Type	Density	Thickness	Sheet Size	Part No.	Price/Sheet
Styrofoam FB (Blue) Large Cell	2 Lb/Ft ³	8"	16" x 4"	01-37600	\$10.99
		8"	16" x 25"	01-01166	\$62.85
		8"	16" x 42"	01-10600	\$106.85
		8"	16" x 67"	01-10800	\$168.75
		8"	16" x 109"	01-10900	\$273.95

POLYURETHANE FOAM

URETHANE – This foam is easily contoured using a large knife, and then sands well to final form. Excellent for producing the fuselage, wing tips, and other curved parts. It is fuel resistant and can be used for fuel cells. Compatible with most adhesives. Do not hot wire polyurethane foam. Available in tan or green.



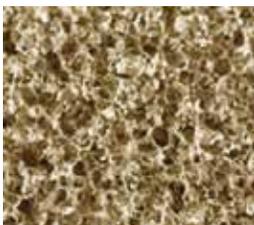
Foam Type	Density	Thickness	Sheet Size	Part No.	Price/Sheet
Urethane (Tan)	2 Lb/Ft ³	1/2"	24" x 48"	01-11300	\$12.95
		1/2"	48" x 48"	01-11400	\$22.85
		3/4"	24" x 48"	01-12150	\$13.99
		3/4"	24" x 96"	01-12160	\$34.50
		1"	24" x 48"	01-11500	\$22.50
		1"	24" x 96"	01-11600	\$68.75
		1"	48" x 96"	01-11700	\$73.75
		2"	24" x 48"	01-11900	\$43.50
		2"	24" x 96"	01-12000	\$84.95
		2"	48" x 96"	01-12100	\$113.75

CAUTION

DO NOT USE HOT WIRE!

DIVINYCELL FOAM

DIVINYCELL – A closed cell medium to high density foam which has high compression strength, durability, and excellent fire resistance. Can be vacuum formed to compound shapes and can be bent using heat. Compatible with polyester, vinyl ester, and epoxy resins.



Foam Type	Density	Thickness	Sheet Size	Part No.	Price/Sheet
Divinycell PVC (Tan) Type H45	3 Lb/Ft ³	1/8"	32" x 48"	01-00158	\$23.50
		1/4"	32" x 48"	01-12300	\$36.75
		3/8"	32" x 48"	01-12400	\$56.75
		5/8"	24" x 47"	01-12500	\$87.75
		3/4"	15" x 26"	01-12600	\$19.95
		3/4"	32" x 48"	01-12700	\$79.65
		3/4"	32" x 24"	01-01197	\$39.85
		1"	32" x 48"	01-12800	\$118.85
		1-3/4"	32" x 48"	01-12900	\$161.75
		2"	48" x 96"	01-12920	\$658.00
		2"	24" x 48"	01-12910	\$164.75
		3"	48" x 96"	01-12940	\$924.00
		3"	24" x 48"	01-12930	\$231.95
		Divinycell PVC (Tan) Type H100	6 Lb/Ft ³	1/4"	42.1" x 42.5"
1"	6" x 10"			01-13100	\$11.65
1"	10" x 12"			01-13200	\$22.85

CAUTION

DO NOT USE HOT WIRE!

LAST-A-FOAM

LAST-A-FOAM – Rigid, Polyether Polyurethane foam with fine closed-cell structure, light cream-yellow color. LAST-A-FOAM® is wonderfully versatile for sandwich-core applications. It cuts and shapes easily with common woodworking tools, and bonds to itself and other materials with most epoxy, polyester, or urethane-type adhesives. LAST-A-FOAM® is unaffected by water, fuels and most solvents, and paint finishes are easily applied. It is frequently used in regular molds after the gel-coat and first two layers of glass are installed; the LAST-A-FOAM® is added and another layer of glass applied for a strong, light-weight sandwich.



Foam Type	Density	Thickness	Sheet Size	Part No.	Price/Sheet
Last-A-Foam Urethane/Polyester (Yellow) 275° F	4.5 Lb/Cu. Ft.	10mm	24" x 96"	01-13400	\$112.75
		1/4"	24" x 48"	01-13550	\$24.50
		1/4"	24" x 96"	01-13500	\$48.70
		3/8"	24" x 96"	01-13600	\$104.75
		1/2"	24" x 96"	01-13700	\$123.85
		3/4"	24" x 96"	01-14000	\$299.95
	6Lb/Cu. Ft.	3/4"	24" x 48"	01-01195	\$149.99
		1/4"	24" x 48"	01-14100	\$29.50
		3/8"	24" x 48"	01-14200	\$89.50
		3/4"	24" x 48"	01-14250	\$149.65
		1"	24" x 48"	01-00648	\$188.65
		8 Lb/Cu. Ft.	1"	16" x 24"	01-01048
	18 Lb/Cu. Ft.	0.200"	12" x 48"	01-14400	\$76.75
		1/4"	12" x 48"	01-14500	\$59.65

CAUTION

DO NOT USE HOT WIRE!

VACUUM BAGGING SUPPLIES

CM

VACUUM BAGGING TECHNIQUES BOOK - P/N 01-14803.....\$5.05/ea.

VACUUM BAGGING FILM - #7400 film is a high grade nylon 6 film. It is transparent green in color and heat stabilized for long term, 350°F cures. Film is soft & pliable and ideal for high temperature composites, metalbond, and any function requiring heat & pressure.

54" Width P/N 01-14805\$1.95/Yd.

60" Width P/N 01-01603\$4.35/Yd.

72" Width P/N 01-01604\$2.75/Yd.

4.5 OZ. BREATHER/BLEEDER PLY - 4 oz./sq. yd. (140 grams / sq. meter) non-woven polyester breather system used for even volatile evacuation from vacuum bags. It can be used at pressures up to 85 PSI (5.8 bars). Multi-directional conformability makes it a very efficient breather. This breather does not contain any binders which could seal the air flow. Width: 60". Sold per yard..... P/N 01-14810.....\$3.45/Lin.Yd.

STRETCHLON VACUUM BAG FILM 60" - Modified urethane film with incredibly high elongation. Can be reused. .0015 x 60" x 200 ft (38µ x 1.52m x 62m) Maximum temperature use 250°F (122°C). 120" wide (3.04m). Perfect for compaction. Not affected by low humidity, always stays soft with no cracking. Can be heat sealed to custom shapes . P/N 01-01080.....\$5.65/Lin.Yd.

10 OZ. BREATHER/BLEEDER PLY - #3100 is a 10 oz./sq. yd. nonwoven polyester breather system used for even volatile evacuation from vacuum bags. It can be used at pressures up to 200 PSI (13.8 bars). Multi-directional conformability makes it a very efficient breather. This breather does not contain any binders which could cause seal-off of air flow. Width: 60"..... P/N 01-14815.....\$9.50/Lin.Yd.

2 OZ. NYLON RELEASE PLY - #5201 SRB is a smooth nylon fabric which has been scoured and heat set so that it is contaminate free and will not shrink during the laminate cure cycle. It is then coated with a special release blend. The peel ply may be used for composite manufacturing and metal bonding, but is not recommended for use with resin systems containing phenolic. Thickness: .005". Color: Blue. Width 60". P/N 01-14820 ..\$12.80/Lin.Yd.

3 OZ. POLYESTER RELEASE PLY - #5252SRB is a medium coarse weave polyester peel ply that leaves a surface with a rougher texture. It has been scoured and heat set to eliminate shrinkage during use and then coated with a special release blend. It can be used on all composite and metal bonding systems and is not affected by resin systems containing phenolic. #5252 provides protection of the laminate surface between primary & secondary processing. Thickness: .006". Color: Blue. Width: 60"..... P/N 01-14825...\$14.95/Lin.Yd.

POROUS TEFLON COATED RELEASE FILM - #7025 is used where a medium weight porous release fabric is required on the surface of a part. During the cure of the assembly it will allow excess resin and all of the air and volatiles to pass into the bleed/breather ply (CFM Airflow 70). At completion of the cure the fabric will release cleanly from the assembly. Color: Brown. Width: 37.5". 10 yard min. order. P/N 01-14835\$9.50/Lin.Yd.

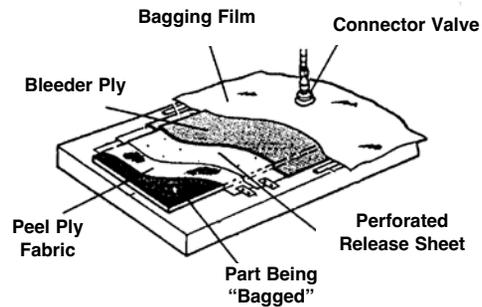
2410 RELEASE FILM - Release Film - 2410 material is the most economical release film available that can be used at temperatures over 350° F. The film has handling qualities similar to the lowest priced halohydrocarbon film. 54" wide, .002" thick. Blue P/N 01-01427.....\$4.35

NON-POROUS TEFLON COATED RELEASE FABRIC - #7039 is a light weight extra smooth TFE coated glass fabric. Will leave little or no fabric imprint on most composite lay-ups. It is used as a release fabric where there is no requirement for bleeding or breathing resin or volatiles from the composite lay-up. It is mainly used for protecting caul sheets from resin contamination and as a release media on tool surfaces. Thickness: .003". Color: Brown. Width: 37.5" P/N 01-14840...\$19.50/Lin.Yd.

PERFORATED RELEASE SHEET E2760 - E 2760 is a red tinted, copolymer, high elongation, low temperature release film with excellent conformability. An excellent release film for use on highly contoured parts for cure temperatures up to 250°F. E 2760 offers good release properties in the curing temperature range where release films are required. The colored film provides for easy identification and removal from parts. P/N 01-01194.....\$4.35

FLASH TAPE - #6045-02 is a polyester backing film with a fully cured silicone adhesive. This tape is very tough and ideal for resin or adhesive flash removal. Color: Blue. Thickness: .002". Roll size: 1" wide x 72 yds. P/N 01-14845.....\$19.60/roll

400° F RESISTANT SEALANT TAPE - #4401 is a grey vacuum bag sealant tape that removes cleanly from the tool surface at the completion of the cure cycle. It can be used at any temperature up to 400° F. It can be used on any tool surface now in use and has been a standard of the industry for many years. It has high initial tack and is very easy to apply to prevent leaks between the bag and tool. It works well for composites, metalbond, or any function that requires temperature and/or pressure up to 400° F. Color: Grey. Size: 1/8" x 1/2" x 25 ft. P/N 01-14850\$11.50/roll



VACUUM VALVE - TWO PIECE - #8112 is a two-piece vacuum valve which requires one quarter turn to lock in place. Service temperature to 500° F. This valve is an industry standard. The base is anodized and is red in color. Inside Diameter: 1/4" standard. Threads: 1/4" NPT. P/N 01-14855\$31.85/ea.

OVEN VACUUM HOSE - #8020 is a thick walled, flexible silicone hose. It is normally used for debulking and oven cures using vacuum only. Furnished in standard 10 foot lengths. Other lengths available on special order. Hose size: 1/4" ID.....P/N 01-14860 ...\$114.75/ea.

HIGH TEMPERATURE QUICK DISCONNECT SET - #8432 is a two-piece quick disconnect both male and female for use to 500° F at pressures up to 200 PSI (13.8 bars). Sold as a set of male & female components. P/N 01-14865\$32.75/set

SHRINK TAPE - #9010 is an oriented polyester film designed to shrink as the laminate approaches cure temperature. The applied pressure is maintained during cure. It is used extensively where the shape of the assembly makes conventional bagging too labor-intensive. If excess resin needs to be released during cure, perforating the shrink tape after the assembly has been wrapped with a porcupine roller will reduce the resin content as well as permitting air and volatiles to escape. Thickness: .002". Width: 1-1/4", Roll length: 100 ydsP/N 01-14870\$25.80/roll

GREENFLOW 75 - Greenflow 75 is designed to efficiently distribute resin with little waste due to the low profile, tight construction. Greenflow 75 can be used with polyester vinylster and epoxy resins. Color: Green. Thickness: .035±.003 (.89mm±75µm). Melt Point (Method:DSC): 230°F (161°C). Configuration of Net: Rhombic.....P/N 01-01081\$3.85/Lin. Yd.

SEALANT TAPE ROLLER - #9050 is a plastic roller designed to assist in applying sealant tape between the bag and the tool. It assists the operator in applying maximum pressure to make a leak-proof, smooth seal. The unit is lightweight and easy to use, and the plastic roller helps prevent damage to the film. Roller width: 1-3/16". Roller Diameter: 1-3/8". P/N 01-14875\$29.95/ea.

PORCUPINE ROLLER - #9060 is a steel roller with a wood handle designed to perforate films to allow air, volatiles, and some resin to flow through the film. The amount of resin flow can be controlled by the depth of the pin penetration. Also useful on foam to give the bonding adhesive a better grip on the foam surface.....P/N 01-14880 ...\$113.75/ea.

VACUUM GAUGE - a dial faced vacuum gauge capable of displaying vacuum from 0" to 30" Hg. It is 2" in diameter and can be used on the vacuum pump line, holding tank, or with a vacuum valve to determine vacuum in specific areas of a bagged assembly. Fitting size: 1/4" NPT. P/N 01-14885\$15.50/ea.

STANDARD MODEL VACUUM PUMP/AIR COMPRESSOR - Thomas Oil-less WOB-L Piston Compressor / Vacuum Pump P/N 01-01569\$508.00

VACUUM PUMP KIT - Includes vacuum pump, gauge, valve, fittings, and hose.....P/N 01-00164\$595.00

HIGH VOLUME AIR COMPRESSOR / VACUUM PUMP - Unit features rugged flexible piston cup and shaded-pole motor with high-torque start windings. Corrosion-resistant sandwich valve stops foreign particles from lodging on valve seats. Aluminum cylinder heads and pistons. P/N 01-01570\$1,214.00

VACUUM RELIEF VALVE - P/N 52763\$18.95

BAGGING SUPPLIES STARTER KIT - Includes 10 yards of Vacuum Bagging Film #7400, 10 yards of 4.5 oz. Breather Bleeder #3, 1 roll 400° resistant Sealant Tape (25 ft/roll), 10 yards Dacron Fabric 1.8 oz. x 60", & 10 yards 60" x .001 Perforated Release Sheet. P/N 01-14894\$167.95

ECONOMY VACUUM GENERATOR - a low cost and reliable method of generating a vacuum for those who already own an air compressor. The generator will create 27" of Hg vacuum/pressure when coupled in-line to an air compressor capable of producing 2.2 cfm. Larger air compressors are advisable for continuous use applications. Suitable for parts up to 80 ft2.....P/N 12-11148\$269.95

AIRCRAFT PLASTIC REPAIR – FILLERS

CM

ECONOMICAL MULTI-PURPOSE SEALANT TAPE



AT-200Y is an economical multi-purpose sealant tape with high tack. It removes easily from metal or composite tools. Suitable for cure applications up to 400°F (204°C).

Specifications: • Color: Yellow • Base material: Synthetic rubber • Maximum use temperature: 400°F (204°C) • Shelf life: 12 months from date of manufacture • Storage conditions: Tape must be stored flat in original packaging at 72°F (22°C) / Do not refrigerate
Dimensions: 1/8 inch x 1/2 inch x 25 feet (3 mm x 12 mm x 7.5 m)
Benefits: • Economical vacuum tape reduces the cost of vacuum bagging. • Multi-purpose tape can be used on metal and composite tooling. • Easy clean up reduces cost of tool cleaning.

P/N 01-01602\$9.65



1000-A SUPER CLEAN PLASTIC CLEANER (19 FL. OZ.)

Before doing any sort of plastic repair, use Super Clean plastic cleaner to maximize the durability of your repair. Super Clean removes mold release agents, wax, grease, silicone, tar, bugs, sealers and other contaminants from painted or unpainted plastic or metal surfaces. It's simple to use, just spray it on and wipe it off with a clean, lint-free cloth.

P/N 01-00533\$16.50

2020-T SMC HARD-SET FILLER (2-5 OZ. TUBES)

SMC Hard-set Filler is a 2-part epoxy system that is very rigid when fully cured. It works on ABS, SMC, fiberglass, polycarbonate and on any other repair application that requires a rigid, high impact resistant repair material. It has a working time of 3 to 4 minutes and is ready to sand in 15 minutes.

P/N 01-00534.....\$25.50



2045W STAINLESS STEEL REINFORCING MESH (50 SQ.IN.-5"X10")



Reinforcing Wire Mesh is designed to be used to reinforce any repair made with an airless plastic welder. We recommend that the mesh be used to when a tear goes to the edge of the plastic. Since it is stainless steel, it is 5 times stronger than aluminum wire screen and is virtually impervious to oxidation under normal conditions. You can also use the mesh to fabricate tabs, fill holes and provide reinforcement in any meltable plastic.

P/N 01-00536\$6.50

POLY FILLER



POLY FILLER HT is a two component polyester filler paste system that provides the user both unique ease of handling and high performance characteristics when cured. POLY FILLER HT is formulated to provide a smooth creamy handling consistency and a dry tack-free surface when cured. A significant advantage of POLY FILLER HT over other materials of this type is its very low cured shrinkage.

This feature allows faster application and repairs than with other filler pastes, which usually must be applied in several layers because of their high shrink age rate! The creamy texture of POLY FILLER HT allows for easier applying and spreading. POLY FILLER HT can be troweled to a feather edge without rolling or skipping. It can be used to fill tiny pin holes with out lifting. The dry, tack-free nature of the cured POLY FILLER HT paste provides for easier working with tools and prevents sand paper from becoming gummy.

Once applied and cured, POLY FILLER HT will bond quite well to most surfaces such as aluminum, copper, fiber glass, epoxy, steel, plaster, graphite and kevlar laminates. It will also accept all types of enamel, epoxy, lacquer and paint stains as a surface finish.

POLY FILLER HT utilizes an excel lent high temperature resin base, and therefore the cured paste can be subjected to service temperatures in excess of 400°F.

Black Quart.....P/N 09-04569\$42.50
 Black GallonP/N 09-04571\$124.75
 Gray Quart.....P/N 09-04570\$41.95
 Gray GallonP/N 09-04572\$108.75

PLASTIFIX REPAIR KITS



PlastiFix repairs virtually any rigid plastic and works exceptionally well on ABS. Repair cracks, fill gaps, reinforce repairs, rebuild broken tabs, fix stripped threads, and more. PlastiFix's most unique feature is the FlexMold molding bar which allows you to create a mold and cast missing pieces. No other plastic repair is more versatile. The 30 gram kits are enough to complete approximately 24"+ of cracked plastic repair. The large kits will do about 24 feet.

Kit Includes: 253X PlastiFix Powder 30G, 2520 PlastiFix Liquid 50ML, 2542 Dropper Bottle Assembly, 2543 Power Application Cup, 2548 Transfer Pipette, 2550 Applicator Needle Qty: 2, 2560 Flexmold Molding Bar 10CC.

2501-PlastiFix Repair Kit (30g, white).....P/N 01-00542\$36.50
 2503-PlastiFix Repair Kit (30g, black).....P/N 01-00543\$36.50
 2504-PlastiFix Repair Kit (30g, clear)P/N 01-00544\$36.50

2502-Large Kit includes: 2531-L PlastiFix Power 150G (WHITE), 2532-L PlastiFix Power 150G (BLACK), 2520 PlastiFix Liquid 250ML, 2542 Dropper Bottle Assembly Qty. 2, 2543 Power Application Cup Qty. 2

2548 Large Transfer Pipette, 2550 Applicator Needle Qty 4
 P/N 01-00545\$111.75

WEST SYSTEM 406 SILICA FILLER



406 Colloidal Silica is a thickening additive used to control the viscosity of West System Epoxy and prevent epoxy runoff in vertical and overhead joints. 406 is a very strong filler that creates a smooth mixture, ideal for general bonding and filleting. It is also the most versatile filler.

Often used in combination with other fillers, it can be used to improve strength, abrasion resistance, and consistency of fairing compounds, resulting in a tougher, smoother surface. Off-white.

5.5 ouncesP/N 406-7\$44.77

WEST SYSTEMS FIBERGLASS REPAIR KITS



Here is everything you need to complete small repairs around the boat, shop or home.

Contains:

- #101 Handy Repair Pack - Convenient kit contains enough material to complete one repair.
- Two 16g. packets of #105 Resin
- Two 3.2g. packets of #205 Hardener
- 3.5g. High Density Filler
- 1 application brush
- Ground Shipping Only
- This kit is large enough to tackle a multitude of repair jobs.

P/N 01-08760\$21.99

2303-3 INSTA-WELD ACTIVATOR (2 FL. OZ. WITH SPRAYER)

This quick spray Activator causes instant curing of all Insta-Weld adhesives and other cyanoacrylate adhesives. The activator may be used before or after the adhesive is applied. This 2 fl. oz. (59 ml) plastic bottle comes with a sprayer.....P/N 01-00541\$12.50

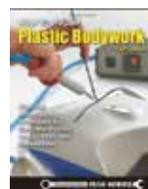


2043-U UNI-CLOTH FIBERGLASS CLOTH (9 SQ.FT.)



Uni-Cloth is a quality fiberglass cloth that is well suited for reinforcing plastic repairs as well as any other application requiring fiberglass reinforcement.

P/N 01-00535\$17.80



PLASTICS REPAIR INSTRUCTIONAL BOOK

P/N 01-00554.....\$29.60

FILLERS

CM

GLASS BUBBLES



These bubbles are actually hollow glass spheres. Because the high-quality glass is very crush resistant, the foam is much stronger, stiffer and water-resistant than any foam made by chemical foaming. These foams displace 4-6 times their weight in most resins and improve the handling characteristics of the base resin. They have a low bulk density and are nontoxic. Mix resin and hardener as directed, then fold in the glass bubbles. Upon cure, a strong, low-density product results which is easy to sand and file. May be shaped to form compound angles and curves. The term "micro" was applied to the mixture of microspheres and epoxy early in the development of composite structures. Although microspheres have been replaced by glass bubbles the word "micro" is still commonly used to reference the mixture. "Micro" is used to fill voids and low areas, to glue foam blocks together and as a bond between foams and glass cloth. Micro is used in three consistencies - (1) a "slurry" which is a one-to-one by volume mix of epoxy and glass bubbles, (2) "wet micro" which is about two to four parts glass bubbles by volume to one part epoxy, and (3) "dry micro" which is a mix of epoxy with enough glass bubbles to obtain a paste which will not sag or run (about five parts to one by volume). In all instances glass bubbles are added to completely mixed epoxy resin and hardener. Wet micro is used to join foam blocks and is much thicker than slurry (it has the consistency of honey) but can be brushed. Dry micro is used to fill low spots and voids and is mixed so that it is a dry paste and will not sag. Apply with a putty knife. Never use micro between glass layers.

CAUTION - When mixing epoxy and glass bubbles, wear a dust mask and keep your face away from the balloons that may float up into the air. Although glass balloons are inert, they can lodge in your eyes or in your lungs and cause problems. Handle with care.

One Pound Bag (Approx. 1 Gal.).....P/N 01-14600**\$11.50** Five Pound Bag (Approx. 5 Gal.)..... P/N 01-14700..... **\$53.75**

DISPOSABLE ICING BAGS



These 12" disposable icing bags are ideal for applying beads of any size of micro epoxy or flox epoxy to all surfaces. Great for close-outs and are real time savers. Simply fill, cut end to desired bead size and squeeze. Never breaks down from epoxy. Sold in packs of 100 icing bags. Pack of 100 bagsP/N 01-14710**\$14.85**

CAB-O-SIL



Cab-O-Sil is a fumed lightweight silica thickener used to reduce the flow of epoxies on vertical surfaces, as well as filling pinholes with its smooth texture. 1 Gallon bag.....P/N 01-04711**\$24.85**

FLOCKED COTTON FIBER



A structural resin filler. The mixture of cotton fiber and epoxy is referred to as "flox". The mixture is used in structural joints and in areas where a very hard, durable buildup is required. Flox is mixed in much the same way as dry micro but only about two parts flock to one part epoxy is required. Mix in just enough flock to make the mixture stand up. If "wet flox" is called out, mix it so it will sag or run. Flox is often used to reinforce a sharp corner. Paint a light coat of pure epoxy inside the corner, trowel flox in to make a triangular support. The flox corner is done just before one glass surface is applied for a wet bond to one surface.

1 Lb. Bag.....P/N 01-14800**\$4.85**
5 Lb. Bag.....P/N 01-14900**\$23.75**

MILLED GLASS FIBERS



As the name implies, this material is made by milling fiberglass into a very thin consistency. This material is used in preparing a structural filler. This material is used in fillets that require structural integrity. Milled fiber fillers have higher strength than cotton flock but have fine particles of fiberglass that can penetrate the skin.

1 Lb. Bag.....P/N 01-14780**\$3.75**

PELOUZE DYMO DIGITAL SCALE



Ultra-compact design for super portability. Features an LCD screen with easy-to-read digital readout. Convenient "hold" feature locks weight display for ten seconds after item is removed. Digital postal rates. Rates update with Internet download. Operates on: 3 AAA Batteries (included). P/N 12-01580**\$62.75**

3M™ #77 SPRAY ADHESIVE

This aerosol spray adhesive works well to laminate styrofoam sheets together. Laminations cut well with a hot wire. Net wt. 16.75 oz. a 24 fl. oz. Aerosol Spray Can P/N 09-28330.....**\$19.95**



PUTTY FLEX FILLER



Urethane Supply Company's 1047 Putty Flex is a premium polyester finishing glaze that provides superior adhesion with excellent flexibility on plastics. Putty Flex produces excellent feather edge results on plastic, metal, SMC, fiberglass, cured primer and paint. Use to fill pinholes, dings, scrapes, sanding scratches and more! Putty Flex sands easily and resists clogging sandpaper. P/N 01-00961**\$29.70**

HI BUILD POLYESTER SANDING PRIMERS



• Quick Build Primer • Quickly fills uneven surfaces, and major imperfections • Easy sanding prep for surface primer, top coats • Low VOC product • Perfect Primer for pretec topcoats or any other surface coatings desired • Fairly Hi-Build to 120mils

Color	Size	Part No.	Price	Size	Part No.	Price
Gray	Quart	09-02162	\$65.75	Gallon	09-02163	\$168.75
Black	Quart	09-02164	\$55.75	Gallon	09-02165	\$167.75
White	Quart	09-02166	\$41.50	Gallon	09-02167	\$167.75

Requires Catalyst P/N 01-01119.

DYNALITE



A formulation of polyester resin, talcs and Microspheres used as a lightweight filler on metal and fiberglass. Works easily, sands faster. Only 7.5 lbs. per Gallon as compared to 12 lbs. per Gallon for conventional fillers. 494 GallonP/N 01-00368**\$45.70**

FIX-IT



A universal repair compound. It is excellent for rebuilding or fabricating parts and as an all purpose adhesive for wood, metals, ceramic, glass, and many plastics. Fix-it can be tapped or drilled, sanded, filed or painted. Patch holes and cracks and seals leaks. Sets rock hard overnight. Fix-It Metal is the same as standard Fix-It except it is loaded with aluminum metal to match the strength, weight, and use for each project. Fix-It is non-toxic, non-hazardous, and impervious to fuels and liquids. Fit-It 1/4 Lb kit.....P/N 01-14770**\$19.50**
Fit-It 1 Lb kit.....P/N 01-14775**\$32.75**
Fit-It Metal 1/4 Lb kit...P/N 01-14790**\$18.75**
Fit-It Metal 1 Lb kit.....P/N 01-14795**\$32.85**

FILLERS – PRIMERS

CM



SUPERFIL BY POLY-FIBER

An ultra-light, corrosion-inhibiting filler for aircraft, marine and automotive use. Adheres to composites, bare aluminum, steel and bare or varnished wood. Easy to mix & apply: mix 2 parts A:1 part B by weight: apply with squeegee; let dry overnight. Excellent sanding qualities. More consistent than hand-mixed micros. Wt: less than 5 lbs/gal. **Hazardous.**

1 Quart Kit (20oz. Resin/12oz Hdnr).....P/N 09-28250**\$41.85**
3 Gal Kit (2 gal. Resin/1 gal. Hdnr)P/N 09-28260**\$353.41**

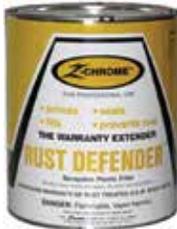
UV SMOOTH PRIME FILLER/PRIMER



The pinhole killer! Waterborne polyurethane primer plus UV blocker applied with a foam roller or spray gun. Fills pinholes in layups or molded parts. White color. Once UV Smooth Prime has dried for 7 days, spray white two-part catalyzed Epoxy Primer to seal the surface and provide moisture and chemical resistance prior to spraying top coat paint. Dry sand for a smooth, pinhole-free surface. Dries in 20 minutes, sand in two hours. Clean up with water. Use Poly-Fiber Gun Cleaner to clean your spray gun after each day's spraying. **NON-HAZMAT.** Three Gallons required for most composite aircraft. **CROSSLINKING NO LONGER REQUIRED.**

Quart.....P/N 09-28280**\$76.75**
GallonP/N 09-28290**\$249.85**

RUST DEFENDER SANDABLE FILLER



A one step finishing material from bare metal, body filler plastic, wood, aluminum, or fiberglass to a surface ready to accept any type of paint without concern about penetration of solvents or moisture. Provides fast build-up and fill, is non-shrinking, easy sanding, wet sandable and waterproof, and self-etching. Can be sprayed or brushed on and can be built up like Bondo or Featherfill. Ready to sand in one hour, and it does not clog up your sandpaper. Pot life and cure time are about one hour at 70 degrees Fahrenheit. Versatile polyester filler.

GallonP/N 01-00559**\$255.95**

FILL BOND PUTTY



Fill Bond aerospace putty from Sherwin-Williams Aerospace Coatings has been created specifically for aerospace use. Designed to fill rivets, seams and small spot-repair areas on the exterior of aircraft fuselage and wings, this high-build body filler is now available in a convenient epoxy version. Fill Bond putty is extremely flexible, offers direct-to-metal adhesion (with properly pretreated aluminum),

provides excellent spread ability and offers a long, workable pot life to give users the amount of time to apply material on a variety of aircraft surfaces, including aluminum and composites. The epoxy putty dries quickly for a fast sand - in just two to six hours. A specially-designed Fill Bond dispensing gun enables users to apply putty exactly where it is needed without requiring additional tools. There's minimal waste following application. Users apply only as much product as they need and then can put the cap back on the convenient cartridge containers for later user, saving on material and disposal costs.

Fill Bond Cartridge 750ML.....P/N 01-01124**\$224.95**
Fill Bond Cartridge 375ML.....P/N 01-01125**\$161.75**
Manual Dispensing Gun 370ML.....P/N 01-01126**\$282.95**
Manual Dispensing Gun 750ML.....P/N 01-01127**\$342.00**
Static Mixer Element.....P/N 01-01128**\$9.50**

PRIME COAT PRIMER / FILLER



VHT Prime Coat™ is an excellent foundation for any enamel, acrylic or synthetic lacquer. It provides a tough, air-dry base with excellent adhesion to intermediate and top coatings. VHT Prime Coat™ is specially formulated to fill scratches or pin holes caused by sanding or body fillers to form a strong corrosion barrier. It is a multi-purpose product, and can be used on metal, fiberglass, masonry, wood and most plastic surfaces. It is ideal for automotive, marine, aviation, home, farm, and industrial use.

11 oz. canP/N 01-00305**\$19.50**

TR MOLD RELEASE SEALER & WAXES



On new or reconditioned tooling, suggest use of the sealer glaze TR-301 prior to waxing for added release, gloss and mold life. Apply wax with sponge applicator in thin even circular motion to the mold surface. Allow to haze dry (approx. 5-10 min) and polish wipe to gloss finish. For new or reconditioned molds apply a minimum of 6 coats of paste wax, waiting approx. 30-60 minutes between applications for the wax to harden after the polish wipe.

Model	Description	Part No.	Price
TR102	A firm carnauba based mold release paste wax blended with other synthetic waxes for use in various thermo-set composite molding applications.	01-01598	\$24.50
TR104	A firm mold release paste wax based on the highest quality refined Carnauba Wax blended with other high temperature synthetic ingredients and petroleum distillates.	01-01597	\$23.50
TR-103	A high-gloss seal for negative forms with a cleaning, polishing and sealing effect. It closes the pores of the mold and thus creates the best conditions for optimum molding quality.	01-01599	\$66.75

HYSOL EPOXY PATCH KITS



EPL0151 is a clear two part resin / hardener which is ideal for bonding fiberglass, PVC, and graphite. Cure time is 6-8 hours. EPK1C is a white 2-part resin / hardener epoxy system which is used to bond aluminum and ceramics.

EPK0151 Kit, 3.35 oz. (fiberglass)P/N 01-15875**\$23.95**
EPK1C Kit 4.0 oz kit (aluminum).....P/N 01-15880**\$20.50**

LITE WEIGHT FILLER



Lite Weight autobody filler is a very versatile filler which is excellent for holding jig blocks in place during composite construction. Applies evenly and allows sanding within minutes. Cures well even in humid climates. Creme hardener is included.

Quart.....P/N 01-00243**\$37.50**
GallonP/N 01-00244**\$61.75**

WEST SYSTEM 403 MICROFIBERS ADHESIVE FILLER



403 Microfibers Adhesive Fillers, a fine fiber blend, is used as a thickening additive with WEST SYSTEM Epoxy to create a multi-purpose adhesive, especially for bonding wood. Epoxy thickened with microfibers has good gap-filling qualities while retaining excellent wetting/penetrating capability. Off-white. 20 ounces.P/N 01-01650**\$40.99**

WEST SYSTEM 404 HI DENSITY FILLER



404 High-Density Filler is a powdered thickening additive for WEST SYSTEM Epoxy. Developed for maximum physical properties in hardware bonding where high-cyclic loads are anticipated. It can also be used for filleting and gap filling and where maximum strength is necessary. Off-white. 15.2 ounces. 15.2 OzP/N 01-01687**\$22.99**

WEST SYSTEM 410 MICROLIGHT



An excellent filler which provides easy workability for a variety of applications. Easy to sand and cures to a neutral tan color.

1.7 OzP/N 01-08780**\$26.99**
4.3 OzP/N 01-08785**\$49.99**

FOAM – PRIMERS – PAINTS – TOOLS

CM



LIQUID "X-30" FOAM (TWO-COMPONENT POLYURETHANE FOAM)

This system consists of two components - "X-30" Resin and "X-30" Catalyst. When the resin and catalyst are mixed in equal volumes they expand into a rigid closed-cell foam of 2 pound density. Thorough mixing of the two components is essential. "X-30" Foam expands approximately 40 times its liquid volume. Small-batch mixes are recommended. Cured foams can be easily trimmed, cut and shaped with common woodworking tools. Use toluene or MEK for cleanup. "X-30" Foam contains a highly reactive agent and is classified as a toxic material. It is combustible, a strong skin sensitizer and eye irritant. Avoid contact with the skin. Use rubber gloves when handling. **Used for:** Flotation, thermal and acoustical insulation reinforcement and miscellaneous void filling. Most small pleasure boats can be made "sink-proof" with approximately two Gallons of "X-30". Data sheet available. "X-30" Foam contains a volatile fluorocarbon and should be stored at 70°F. or lower. "X-30" is used on the Osprey II bottom hull, canopy, nose cone, etc., requiring about four Gallons of material (2 Gallons of each). Shelf life at least 6 months. Users have reported "more than 2 years shelf life".

Kit Size	Approx. Foamed Vol. (Cu.Ft.)	Weight Lbs.	Part No.	Price/Kit
1 Quart Kit (1 Pt. ea component)	1-1/4	3	01-08800	\$66.75
2 Quart Kit (1 Qt. ea component)	2-1/2	6	01-08900	\$123.75
2 Gallon Kit (1 Gal. ea component)	10	22	01-09000	\$297.95
10 Gallon Kit (5 Gal. ea component)	50	110	01-09100	\$644.00

X-30 is the original polyurethane foam. Do not accept substitutes!

MOLD RELEASE AGENTS



POL-EASE® 2300 MOLD RELEASE

Provides superior release with minimum buildup on mold surfaces for casting urethane elastomers, epoxy, polyester, and rubber compounds. Molded parts are easily cleaned for finishing operations. It is effective on aluminum, steel, epoxy, polyester, and elastomeric molds; it does not distort intricate patterns. P/N 01-31749\$27.75

MAXIMUM MOLD RELEASE WAX

Meguiar's® Mold Release Wax is a blend of imported waxes specially formulated to provide a maximum number of releases per application. P/N 01-09415..... \$21.50



MOLD RELEASE WAX

High-temperature paste wax. 14 oz. P/N 01-00177\$24.50



FIBERGLASS MOLD RELEASE

Plastilease 512B, a film-forming, water soluble parting agent, assures clean release of fiberglass parts from molds. For application by brush or spray. P/N 01-30600..... \$13.25/Qt.



LPS MRX SILICONE MOLD RELEASE

Excellent for releasing molded parts in high temperature and extreme pressure environments. MRX Silicone Spray Mold Release provides maximum releases and superior value for the end-user. This non-staining, non-corrosive mold release is heat stable up to 500°F. It is a nonflammable product and contains no class I or II ozone depleting chemicals. Like all LPS MR-series mold releases, MRX Silicone Spray Mold Release doesn't use Methylene Chloride. 16 oz. aerosol canP/N 09-00271\$18.60



PVA RELEASE FILM

PVA (Polyvinyl Alcohol) should be used with #1016 Wax to aid in the release of parts from a mold. It should be applied in 3 thin mist coats over nonporous, waxed mold surfaces. After the final wax coat has dried, begin by spraying a light tack coat of PVA. Typically, within 5 mins. the final heavier coats can be added. The PVA dries to form a smooth, glassy film. After part release, the residual film can be removed with water. We recommend using an inexpensive automotive siphon spray gun and 70-90 PSI for application, although airbrushes will work on hobby size projects. PVA can also be sprayed over any polyester repair to provide an airless tack-free cure. For use with epoxies ..P/N 01-14813A..... \$24.75/qt



ZOLATONE COCKPIT PAINT

Used to paint cockpit interiors, excellent on fiberglass. Gives a coarse, durable, professional finish. One Gallon required for Long-EZ cockpit. See instructions for proper primer use on all surfaces in question. Color chart available on request. Order Color Chart P/N 01-15815.



Color	Use Primer	Part No.	Price
White/White	White	20-02	\$173.75
Apollo Gray	-	20-11	\$178.85
Hamlet Black	-	20-42	\$172.75
Camille White	White	20-54	\$173.75
Lilith Charcoal	Black	20-59	\$173.75
Gray Stone	Gray	20-64	\$173.75
Onyx Black	-	20-71	\$173.75
Silver Gray	Gray	20-72	\$173.75

HI GLOSS CLEAR POLYESTER TOP COAT



Features: • Super Clear - Glass like appearance
• Scratch Resistant • Buffs to a Super Hi-Gloss Finish
• Refinishes to Original Hi-Gloss • Practically a Walk-A-Way Gloss Finish **Product Applications:** • Exotic wood coating • Gel coat additive for air cure application
• Musical instrument wood coating • Top coat over clear primers • Top coat over pigmented colors for clear depth
• Automotive interior composite parts clear coating
• Architectural wood crafts
QuartP/N 09-02168\$53.75
Gallon.....P/N 09-02169\$167.75

Requires Catalyst P/N 01-01119.

DISPOSABLE RESPIRATOR REPLACEMENT PARTS

Dusts, Mists, & Fumes Pre-Filter P/N 01-00382\$1.85



GROOVED LAMINATING ROLLERS

These are the standard laminated rollers for wetting out woven roving and mat with polyester resin. Use with epoxy resin for applying tape into corners and for spreading thickened epoxy over large areas for gluing and fairing.

1"x 3".....	P/N 01-01054	\$11.50
1"x 6".....	P/N 01-00396	\$14.50
1"x 9".....	P/N 01-00383	\$17.75
2"x 3".....	P/N 01-00384	\$11.50
2"x 6".....	P/N 01-00385	\$19.70
2"x 9".....	P/N 01-00386	\$23.70
1/4" Corner Roller	P/N 01-00387	\$11.50
1/2" Corner Roller	P/N 01-00388	\$11.50
1/2"x 3" Detail Roller	P/N 01-00389	\$9.65
3/4"x 3" Detail Roller	P/N 01-00390	\$8.95



EPOXY LAYUP ROLLERS

3" wide roller with stipple adhesive cover. Has excellent stippling action for working out air bubbles in layups and has no tendency to lift the cloth. Use on all major layups. Order frame and cover separately. Roller Frame Only.....P/N 01-24902\$6.75
Cover OnlyP/N 01-24903\$4.35

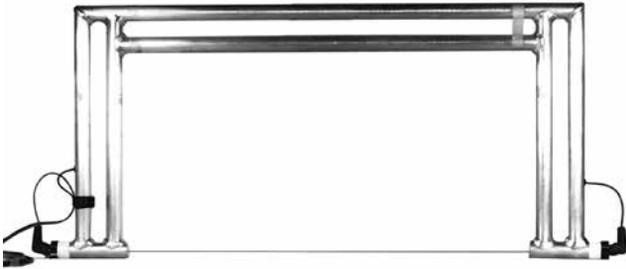
COMPOSITE TOOLS

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AIRCRAFT DESIGNER APPROVED TOOLS

The tools offered in this section have been selected by professional aircraft designers and builders as being either necessary or highly desirable for working with composite structures.

KUT-MASTER FOAM CUTTING FRAME



These custom-built foam cutting frames can help produce professional results in foam cutting for the amateur builder. Constructed of 1-1/8" O.D. aluminum tubing, the heli-arc welded frame is lightweight yet extremely durable. The frames come completely pre-wired and ready to attach to the voltage controls shown below, and a tensioning system maintains uniform wire tension throughout the cutting process. The frames are stocked in 3 standard lengths, and custom frames are available on request (send sketch). Cutting depth is 11". Weight- 5 lbs.

Dimensions	Part Number	Price
2 Ft. Frame	01-15200	\$226.95
3 Ft. Frame	01-15300	\$249.00
4 Ft. Frame	01-15400	\$269.00



HOMEBUILDERS SPECIAL HOTWIRE KIT

An excellent new hot wire system consisting of a controller and transformer. Recommended by Rutan Aircraft Factory as a good system at a very economical price.

P/N 01-15600\$49.85



SAFETY WIRE

Type 302 stainless steel safety wire, for hot wire cutter. This is superior to nichrome wire, which is brittle and breaks easily. Specify .032" or .041" diameter wire.

1 Lb. SpoolP/N 05-02687\$13.95



INCONEL 600 HOT WIRE

Does not stretch. Excellent for hotwiring polystyrene foam.

.049" Dia. WireP/N 01-15805\$0.65 ft.
.041" Dia. WireP/N 01-15810\$0.24 ft.



MUSIC WIRE

Music wire is high carbon steel and although very high in tensile strength, must be capable of wrapping around itself without showing signs of cracking. 156 ft. of .049" dia. wire per lb., 46 ft. of .090" dia. wire, per lb. 22 Ga.

Price is per pound.
.049" Dia. (1 lbs.).....P/N 03-49500\$8.50
.090" Dia.(32Ga.,1lbs.)..P/N 03-49600\$4.45



TYPE 302 STAINLESS SPRING WIRE

062" Dia.....P/N 03-49610\$0.38 ft.

MICHAEL ENGINEERING EPOXY RATIO PUMPS



This highly recommended pump, aptly called "Sticky-Stuff Dispenser", will save about \$50 in epoxy in building a VE type aircraft, plus time, mess, dermatitis, temper and risk of bad batches. Used by individual craftsmen and professionals alike, it is a practical engineering tool especially designed to eliminate the sticky, messy, costly hand proportioning of epoxy resins. It is well built and should last through the construction of dozens of aircraft. The Sticky-Stuff Dispenser assures accurate measurement of low-viscosity (under 3,500 centipoises) unfilled epoxy resin. The standard Model A dispenser pump delivers a ratio of 100 parts of resin to 44 parts of hardener.

Note: This pump is for a 2:1 ratio. 4:1 ratio is available, please request in special instructions at time of checkout.

Adjustable Ratio Pump.....P/N 01-16010 \$389.00
Rebuild Kit for 45:100 pump.....P/N 01-00504\$94.85
Small round replacement container (qt).....P/N 01-15920\$15.85
Large square replacement container (gal).....P/N 01-15910\$27.50
Stainless Steel Check Valve
(Use with Jeffco epoxies).....P/N 01-00258\$71.90

COMPOSITE MATERIALS PRACTICE KIT



All designers highly recommend that builders who are considering a composite project purchase this practice kit. It contains the excellent 26 page 11" x 17" manual by Burt Rutan entitled MOLDLESS COMPOSITE SANDWICH HOMEBUILT/AIRCRAFT CONSTRUCTION (\$14.50) plus the assorted foams, epoxy, fiberglass, filler materials and supplies with which to work. Everything needed to practice the technique of composite building before venturing into a complete aircraft project.

Practice Kit with Manual.....P/N 01-15000\$164.95
Practice Kit without Manual.....P/N 01-15100\$156.95
International Practice Kit with Manual.....P/N 01-15050\$78.75
Same as Practice kit with the manual, but excludes the epoxy for international shipping.

COMPOSITE TOOL KIT



This kit includes an assortment of many of the commonly required tools used in composite construction.

****Note: not all items shown in picture****

QTY.	PART NO.	DESCRIPTION
1.....	20W.....	Glass Shears
1 box.....	01-25800.....	500 Mixing Sticks
2 boxes.....	01-25700.....	12 oz. Mixing Cups
2 boxes.....	01-25710.....	16 oz. Mixing Cups
10.....	01-24899.....	3" Plastic Squeegee
10.....	09-21200.....	1" Disposable Brushes
10.....	09-21300.....	2" Disposable Brushes
1.....	12-01580.....	Electronic Scale
2 boxes.....	01-36550.....	Latex Gloves
1.....	GLR123D.....	1/2" x 3" Laminating Roller
1.....	GLR12C.....	1/2" Corner Roller
1.....	GLR26.....	2" x 6" Plastic Grooved Roller

P/N 01-00166\$272.95

COMPOSITE TOOLS

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STANLEY TAPE MEASURE

This 12 foot steel tape measure, with 1/2" blade, is graduated in tenths and hundredths of inches and also in fractions of inches (32nds). Very handy for all aircraft construction. A "must" for composite construction.
No. 33-272.....P/N 33-272\$17.50

STANLEY UTILITY KNIFE

Aluminum, die-cast in two sections - provides blade storage. Has handy hang hole. Furnished with No. 11-921 blade and blade guard.
No. 10-099.....P/N 10-099\$7.80

KNIFE BLADE

Heavy-duty pointed razor-type utility knife blade for No. 10-099 knife and most other makes of utility knives.
No. 11-921 (Pkg. of 5 Blades)
P/N 11-921\$2.45

HOOK BLADE

For use with No. 10-099 knife and most other makes of utility knives to cut linoleum, roofing material, cartons, etc., without damage. The razor-sharp hooked ends cut to full thickness in one stroke.
No. 11-961Pkg. of 5 Blades
P/N 11-961\$6.20

SINGLE-EDGE RAZOR BLADES

Used for trimming rough edges of laminates.....P/N 01-24904\$0.20/ea.
Box of 100 30% Discount.

SPRING CLAMPS

Heavy-gauge steel clamps with vinyl grips and tips to prevent marring work. Jaws specially formed to hold flat or round objects. Two sizes available:
No. 3202-HT - Jaw Opening 2", Length 6"
P/N 12-03778\$3.95

X-ACTO TOOLS

NO. 5282 KNIFE SET

Nos. 1, 2 and 5 knives plus 10 assorted extra blades Handy, fitted chest.
P/N 01-17300\$39.95

X-ACTO BLADE NO. 11

Classic fine point blade. A general purpose blade. Package of 5
P/N 01-16500\$6.85



STRAIGHT EDGE

A 6-ft. long kiln-dried spruce board, 7/8" to 1" thick and 3" to 4" wide, used for checking the straightness of flying surfaces during composite construction....P/N 01-25900\$38.25



6" STEEL RULER

Flexible stainless steel rule graduated in 10ths and 100ths on one side and in quick-reading 32nds and 64ths on the other side.
6 inch.....P/N 616\$5.95
12 inch.....P/N 12-02062\$9.95

FELT TIP MARKERS

Used for marking locations on fiberglass throughout construction.
P/N 01-26000\$0.45

12" LONG DRILL BITS



For use with standard electric drill for hard-to-reach jobs.
3/32" (.094" Dia.)P/N 12-05200\$6.65
1/8" (.125" Dia.)P/N 12-05300\$6.95
3/16" (.188" Dia.)P/N 12-05400\$8.85
#10 (.1935" Dia.)P/N 12-05500\$9.85
1/4" Dia.P/N 12-05600\$10.50

RUBBER SEALANT

No. 732 RTV general-purpose, clear, one-part silicone rubber. Cures to a firm silicone rubber in 24 hours at room temperature.
4.7 Oz. TubeP/N 09-27800\$13.95

JIFFY MIXER

This is a very effective 2-1/2" diameter stainless steel mixer on a 15" shaft. Attach to an air drill for fast, efficient mixing of larger batches. It will not dig into or gouge the sides or bottom of your mixing container.

P/N 01-00395\$34.50

CALRAD VARIABLE VOLTAGE CONTROL

A fine quality control to supply the electrical current for hot-wire cutting of styrofoam and PVC foam. One unit can serve to build many aircraft. Input 115 volts AC Output variable from 0 to 130 volts AC at 5 amps Caution - fuse should be inserted in the secondary to protect the control in the event of a short circuit.

Input: 117V AC 60Hz 3-Prong AC cord. Output: 0-130V AC Adj 60Hz; volt meter, power jack. Fuse Protection AGC: 5 Amp. Max: 500VA
P/N 01-01294\$187.75

COMPOSITE TOOLS

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ROTARY ("PIZZA") CUTTER

Makes clean cuts on fiberglass fabrics and other materials. The disc blade is made of high quality tungsten steel which is very sharp. Used by high-volume composite shops. Use with wooden backing board and handle knife with caution.

RTY-2 Cutter	P/N 01-00299	\$17.50
Replacement Blade	P/N 01-00300	\$7.95
Blades (5 Pack)	P/N 01-00301	\$31.50
Replacement Pinking Blade	P/N 12-01709	\$11.50

90 DEGREE ALUMINUM ROTARY CUTTER FOR COMPOSITE WORK



This cutter handle is all aluminum with special stainless hardware for easy assembly when changing out rotary cutter blade. Will not melt when exposed to acetone, methylene chloride, and other chemicals. Good for wet layups. To clean, just drop in small container of acetone.

P/N 01-01047 **\$57.75**

PAINT BRUSHES

Natural, undyed bristle brushes with smooth, unpainted wooden handles. Unaffected by paints, dopes, resins, thinners or solvents.



1/2" Wide Brush.....	P/N 09-21100	\$0.80
1" Wide Brush.....	P/N 09-21200	\$0.65
2" Wide Brush.....	P/N 09-21300	\$1.45
2 1/2" Wide Brush	P/N 09-38825	\$0.87
3" Wide Brush.....	P/N 09-38803	\$2.20
4" Wide Brush.....	P/N 09-38804	\$4.60

RUBBER SQUEEGEE

Developed especially for working with epoxies, this 6", or 36" wide hard rubber squeegee is superior to the plastic types. Can be easily cleaned & reused many times.

6" Squeegee.....	P/N 01-24901	\$5.35 ea
36" Squeegee.....	P/N 01-00012	\$29.95ea

NOTCHED SPREADER

This plastic spreader is excellent for spreading epoxy at a steady rate to provide an even surface. Measures 4" x 4" and is notched on three sides in increments of 1/8", 3/16", 1/4".

P/N 01-24909 **\$1.99 ea**

DISPENSER FOR MEKP CATALYST

Perfect to measure and pour catalyst. The bottle will hold 16 oz. of catalyst and dispenses liquid safely and accurately from 2.5 to 35 cc. Measurements are instantly repeatable.

P/N 01-08503 **\$17.50**

POST CURE KIT

This kit consists of one post cure thermometer (P/N 01-00394) and 1 regulating thermostat (P/N 08-12148) that allows control of electrical devices for heating. Snap Disc Fan Control 3/4 inch SPST Flanged Airstream Mount, Open On Rise, 180°F Cut-Out Temperature, 40°F Differential. Therm-O-Disc Style 60T11, Type 610013

P/N 01-00393 **\$19.95**

GRADUATED TAPER-TIP APPLICATOR



This graduated 2 oz. syringe is ideal for measuring and dispensing precise amounts of resins and other liquids.

Note: The ink used for the graduation lines are not solvent resistant. They will rub off if contacted with a solvent.

Without Cap..... P/N 01-25635 **\$5.35**

DISPENSER BOTTLE

Polyethylene bottle with Yorker (applicator) cap.

4 Oz. Bottle.....	P/N 01-24905	\$0.69
16 Oz. (1 Pint) Bottle..	P/N 01-24906	\$1.95

INDUSTRIAL SYRINGE



Made of hi-impact polyethylene with seamless body and special safety-grip plunger. Capacity 10 cc. Tapered dispensing nozzle can be clipped with scissors at proper diameter to govern output. Excellent epoxy dispenser.

P/N 01-25000 **\$6.95**

MIL GAUGES



These color-coded mil gauges are solid anodized aluminum for long life and come in four sizes for a variety of FRP applications. Machined to close tolerances (0.0001") for accuracy and available in mils (inches) and microns (metric).

3-18 mils.....	P/N 01-00411	\$5.25
10-35 mils.....	P/N 01-00412	\$5.75
40-65 mils.....	P/N 01-00413	\$9.85

MULTI-MEASURE PLASTIC CONTAINERS



Use again and again for liquid ingredient accuracy. A must-have item when mixing resins. Seal the liquid in the container with the matching sized plastic lid.

1 Qt. mix cup.....	P/N 01-00915	\$1.60
1 Qt. lid.....	P/N 01-00926	\$0.55
2.5 Qt. mixing cup	P/N 01-00330	\$2.50
2.5 Qt. lid.....	P/N 01-00331	\$1.10

EPOXY MIXING CUPS



Unwaxed, flat bottom paper cups in three convenient sizes for small mixes.

8 Oz. (50 Cups)	P/N 01-01640	\$10.50
12 Oz. (50 Cups)	P/N 01-01641	\$9.95
16 Oz. (50 Cups)	P/N 01-01642	\$12.50

MIXING STICKS



These mixing sticks are medical tongue depressors which work well for mixing small batches of epoxy. Size: 3/4" x 6".

Box of 500 P/N 01-25800 **\$15.65**

TAPERED OFFSET SPATULA



This tapered spatula is stainless steel with wood handle. Ideal for making 3/8" radii on bulkheads, ribs, or anywhere a uniform radius is required.

P/N 01-24915 **\$3.45 ea.**

COMPOSITE TOOLS

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DREMEL TOOLS



MODEL 100 MOTOTOOL

The Dremel 100 Series rotary tool offers single speed convenience for full-speed applications like routing, cutting, drilling and sanding applications. Its single speed setting is perfect for all-the-time high speed use. Ideal when one speed is all you need or for shaping, hollowing, grooving, slotting, inlaying and making tapered holes in soft metals, plastics and woods especially on curved surfaces. Constant Speed: 35,000 RPM. Cool-running ball bearing construction.
Amperage: 1.15

P/N 01-18600..... \$55.75



MODEL 395 MOTOTOOL

Variable Speed: 5,000-32,000 RPM with 100% ball bearing construction for long life, smooth operation. External caps allow for easy replacement of motor brushes.

Amperage: 1.2..... P/N 01-18700..... \$85.75



DREMEL TWO SPEED ROTARY TOOL KIT

Multipurpose Cutting Guide attachment. Ideal for multiple applications on a variety of materials and includes 21 genuine Dremel accessories. Model Number: 200-1/21. Amperage: 1.15. Cord length: 6. Speed: 15,000 or 35,000 RPM. Voltage: 120 AC, 50-60 Hz..... P/N 01-01145..... \$84.95



NO. 402 MANDREL - The 402 mandrel is used primarily with cut-off wheels but is used with the following Dremel accessories: 409, 411, 412, 413, 420, 423, 425, 426, 456, 511, 512, 540 and 541.
Shank Diameter 1/8", 3,2 mm P/N 01-22000 \$3.49



MULTIPRO CHUCK - The Dremel MultiPro chuck allows you to quickly and easily change accessories on your Dremel MultiPro rotary tools without changing collets. Will accept accessories with 1/32" - 1/8" shanks. Use only with corded MultiPro tool models 275, 285, 395, 595.
P/N 01-00131 \$11.99



CARBON MOTOR BRUSH - One pair of motor brushes for use with Dremel rotary tool model(s): 100, 200, 275, 285, 300, 395 and 595 (Type 4, 5 and 6) and Dremel contour sander 6000 (Type 1 and 2)..... P/N 01-01180 \$3.45



NO. 407 1/2" DRUM SANDER - Ideal for rough shaping of wood and smoothing of fiberglass. Sander bands are replaceable. Furnished w/ one band. 1/8" shank
P/N 01-19000 \$5.49



DREMEL 543 CUTTING / SHAPING WHEEL - For cutting and shaping on soft and hard woods, fiberglass, plastics and laminates (not metal.) This versatile wheel is coated with tungsten carbide grit for long life. It is coated on both sides, so it cuts and finishes in one operation..... P/N 01-01056 \$19.99

NO. 408 DRUM SANDER BANDS-1/2" Diameter, Coarse grit.
P/N 01-19100 \$3.49

ALUMINUM OXIDE GRINDING STONES

Use on metals, castings, welded joints, rivets and rust. Ideal for sharpening, deburring and general purpose grinding of most materials.



Cutter	Size	Part No.	Price	Cutter	Size	Part No.	Price
#911	7/16"	01-00135	\$3.49	#945	3/16"	01-00138	\$3.49
#932	3/8"	01-00137	\$3.49	#952	3/8"	01-00139	\$3.49
#941	5/8"	01-00132	\$3.49	#953	1/4"	01-00140	\$5.99



Cutter	Size	Part No.	Price	Cutter	Size	Part No.	Price
#971	5/8"	01-00142	\$3.49	#8175	3/8"	01-00145	\$3.49
#997	3/32"	01-00143	\$3.49	#8193	5/8"	01-00146	\$3.49
#8153	3/16"	01-00144	\$3.49	#8215	1"	01-00147	\$3.35

STRUCTURED TOOTH TUNGSTEN CARBIDE CUTTERS



Fast cutting sharp teeth for greater material removal. Use on fiberglass, wood, plastic, epoxy, rubber, laminates, particle board, soft metals, ceramic tile.

Cutter	Size	Part No.	Price	Cutter	Size	Part No.	Price
#9931	1/4"	01-00148	\$14.99	#9934	5/16"	01-00152	\$14.99
#9933	1/4"	01-00151	\$14.99	#9935	5/16"	01-00153	\$14.99

HIGH SPEED CUTTERS

High Speed Cutters can be used for shaping, hollowing, grooving, slotting, making tapered holes in soft metals, plastics and woods. Number 198 and 199 cutters can be used to make small slits.



Cutter	Size	Part No.	Price	Cutter	Size	Part No.	Price
#100	1/4"	01-19200	\$6.49	#134	5/16"	01-19800	\$6.49
#114	5/16"	01-19300	\$6.49	#144	5/16"	01-20000	\$5.95
#115	5/16"	01-20800	\$10.49	#190	3/32"	01-20200	\$6.49
#116	1/4"	01-20900	\$6.49	#191	1/8"	01-20300	\$6.49
#117	1/4"	01-21000	\$10.49	#192	3/16"	01-20400	\$10.49
#118	1/8"	01-21200	\$6.49	#193	5/64"	01-20500	\$6.49
#121	1/4"	01-19400	\$6.49	#194	1/8"	01-20600	\$10.99
#124	5/16"	01-19600	\$6.49	#196	7/32"	01-20700	\$10.49
#125	1/4"	01-21300	\$10.49	#199	3/8"	01-21700	\$7.49

SANDING TOOLS

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SANDPAPER

The weights and grits listed have been found to be the most effective for sanding fiberglass/epoxy surfaces. Sheet Size: 9" x 11".

Sandpaper Type		Part No.	Price /Sheet Less than 50 Sheets
Aluminum Oxide 36 Grit	Open Coat "D" Weight	01-26200	\$6.50

3M™ WET OR DRY SANDING SHEET



3M™ Wetordry™ Abrasive Sheet 413Q is an abrasive sanding paper constructed on a light, A-weight paper backing and features a waterproof resin bonding to help prevent heat buildup. The silicon carbide abrasive and waterproof backing make this paper an ideal product for sanding applications such as paint prep, sanding, sealer sanding, and solid surface finishing. This will produce satin-smooth finishes on metal and other doped, lacquered, or enameled surfaces.

Features:

- Silicon carbide mineral provides an aggressive cut and a consistent, fine finish
- Light, A-weight paper backing offers excellent flexibility in hands-on applications
- Resin bonding resists deterioration from heat, extending the life of the abrasive cloth
- Waterproof material allows for easy debris removal
- Can be easily cut and folded to fit any hand tool or work piece crevice

Sandpaper Grit Size	Part No.	Price/Sheet
100	01-37700	\$2.58
120	09-20550	\$2.09
150	09-01532	\$1.95
180	09-01531	\$1.94
320	09-20800	\$1.60
220	09-20600	\$1.60
240	09-01529	\$1.50
400	09-20900	\$1.65
600-A	09-01446	\$1.56

PREPPIN' WEAPON SANDING BLOCK



Preppin' Weapon is a handy sanding block made of Styrofoam core and high impact ABS that won't break when dropped. Easy to grip for wet or dry sanding. Contoured to fit the shape of a hand and is sized to fit a 1/4" sheet of plain backed 8 x 11 sandpaper or a 2 3/4" wide file paper. It's coil spring design holds single or multiple sheets equally tight and saves reloading time by stacking up to 4 sheets and tearing them away as the abrasive wears out. Save reloading time by using colors to indicate grits. Excellent for builders of aircraft, boats, cars, etc.

Color	Part No.	Price
Yellow	12-00505	\$25.95
Red	12-00506	\$25.95
Green	12-00507	\$26.50

SANDING DETAILER KITS



The Sanding Detailer is ideal for finishing those hard to reach areas. The abrasive belt can be indexed. The Sanding Detailer is spring loaded to put tension on the abrasive belt. After the abrasive belt is used up, the user can simply compress the tool and replace the abrasive belt with a fresh one. They are color coded for easy identification of grit. The replacement belts are color coded on the inside.

The Standard Kit includes (shown in picture):

- 1 Gray 80 Grit
- 1 Red 120 Grit
- 1 Orange 180 Grit
- 1 Blue 240 Grit • Grit tool along with 5 Replacement Belts of each grit

The Finishing Kit includes:

- 1 Blue 240 Grit
- 1 Green 320 Grit
- 1 Yellow 400 Grit
- 1 Black 500 Grit
- Grit tool along with 5 Replacement Belts of each grit

Description	Part No.	Price
Standard Kit, Coarser Grits	01-01411	\$32.50
Finishing Kit, Finer Grits	01-01412	\$32.50
80 Grit Belt- Replacements	01-01413	\$6.50
120 Grit Belts- Replacements	01-01414	\$6.50
180 Grit Belts- Replacements	01-01416	\$6.50
240 Grit Belts- Replacements	01-01417	\$6.50
320 Grit Belts- Replacements	01-01418	\$4.95
400 Grit Belts- Replacements	01-01419	\$4.95
500 Grit Belts- Replacements	01-01422	\$4.95

PERMA-GRIT CONTOUR SANDING BLOCKS



These user friendly sanding blocks are made from extruded, anodized aluminum. The 32mm (1.25") Radius Curve is covered on the external and internal radius with Tungsten Carbide abrasive sheets. The Contour Blocks come in either the Coarse (60US grit approx.) or Fine (120US grit approx.) Small block is 5.5" long and large block is 11" long.

Benefits:

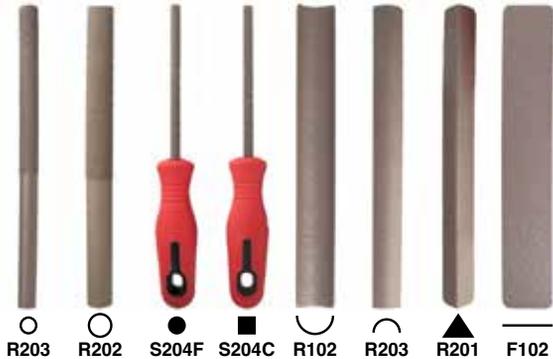
- Shape and sand curves, grooves, etc. quickly and easily
- Great for fillets, leading edges, under cambers, etc.
- Extremely tough, will not wear out like normal sandpaper
- Will last for years without having to change the sheets
- Does not clog easily (brush or knock out)
- Easy to remove glues, resins, paint, epoxy etc. w/ paint remover

Description	Part No.	Price
140MM Contour Block (COURSE)	01-00591	\$30.55
140MM Contour Block (FINE)	01-00592	\$30.55
280MM Contour Block (COURSE)	01-00593	\$44.50
280MM Contour Block (FINE)	01-00594	\$44.50

PERMA-GRIT HAND TOOLS

HAND TOOLS

Perma-Grit Tools are made of Tungsten Carbide Grit, one of the hardest elements available, second only to diamonds. They are specifically designed and developed for aircraft builders, woodworkers, and modelers. These tools will cut, sand and shape tough composite materials, saving homebuilders hours of building time. Ideal for fuselage shaping and wing building, these tools are highly recommended by several kitplane manufacturers. Available in coarse (180) & fine (320) grit.



Model No.	Part No.	Description	Price
F-101	12-00040	230mm x 38mm Flat Fine File	\$14.65
F-102	12-00041	230mm x 38mm Flat Coarse	\$14.65
R-200F	12-00042	230mm x 26mm / 36mm diameter Fine	\$14.65
R-200C	12-00043	230mm x 26mm / 36mm diameter Coarse	\$14.65
R-201C	12-00044	230mm x 38mm Tangent Coarse	\$14.65
R-201F	12-00045	230mm x 38mm Tangent Fine	\$14.65
R-202C	12-00046	18mm diameter tube Coarse	\$14.65
R-202F	12-00047	18mm diameter tube Fine	\$16.60
R-203C	12-00048	12mm diameter tube Coarse	\$14.65
R-203F	12-00049	12mm diameter tube Fine	\$14.55
R-204C	12-00050	6 mm round Coarse grit	\$14.65
R-204F	12-00051	6 mm round Fine grit	\$14.65
S-204C	12-00052	6 mm square Coarse grit	\$14.65
S-204F	12-00053	6 mm square Fine grit	\$14.65
R-101	12-00054	230mm x 38mm diameter Internal Fine grit	\$16.60
R-102	12-00055	230mm x 38mm diameter Internal Coarse grit	\$14.65
Set 8C	12-00056	contains: 8 popular shapes in Tool Roll F-101, F102, R-200C, R-201C, R-202C, R-203C, R-204C, S-204C	\$99.75
Set 8F	12-00057	contains: 8 popular shapes in Tool Roll F-101, F102, R-200F, R-201F, R-202F, R-203F, R-204F, S-204F	\$99.75
TR1	12-00058	Tool Roll - Holds 8 tools, red plastic w/velcro fastener	\$9.50

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ROTARY FILES

Supplied with a 3mm integral arbor so they may be used in reversible drive drills and hobby drills. These files are well balanced and run smoothly, and cur a wide range of materials with little need for secondary finishing. Available in coarse and fine grit.



Model No.	Part No.	Description	Price
RF1C	12-00070	Narrow Cone coarse	\$18.75
RF1F	12-00071	Narrow Cone fine	\$18.75
RF2C	12-00072	Wide Cone Coarse	\$18.75
RF2F	12-00073	Wide Cone Fine	\$17.65
RF3C	12-00074	Drum Coarse	\$18.75
RF3F	12-00075	Drum Fine	\$18.75
RF4C	12-00076	Pancake Coarse	\$18.75
RF4F	12-00077	Pancake Fine	\$18.75
RF5C	12-00078	Domehead Coarse	\$18.75
RF5F	12-00079	Domehead Fine	\$18.75
RF6C	12-00080	1/8 diameter Rod Coarse	\$18.75
RF6F	12-02247	1/8 diameter Rod Fine	\$17.65

ROTARY CUTTING DISCS



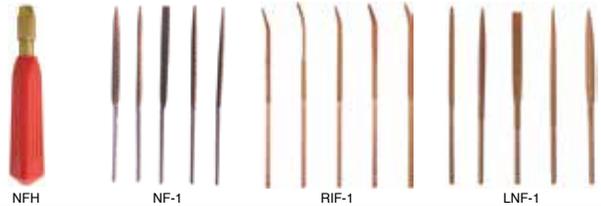
These durable cutting discs are available in two sizes (19mm and 32mm) and come complete with a 3mm steel arbor to fit hobby drills. Will cut all woods, piano wire, composites, ceramics, stone, etc.

Model No.	Part No.	Description	Price
RD-1	12-00067	19mm diameter disc with arbor	\$15.80
RD2	12-00068	32mm disc with arbor	\$17.65
RD3	12-00069	19 & 32mm disc with arbor	\$27.70

NEEDLE FILES

These extremely versatile tools are excellent for shaping and finishing. They will cut in any direction and do not clog easily. Our needle files cut quickly and leave an excellent finish. Very popular for detail work. Furnished in Medium 280 grit.

FILE HANDLE NEEDLE FILES RIFFLER FILES LARGE NEEDLE FILES



Model No.	Part No.	Description	Price
NF1H	12-00081	Set of 5 needle files w/ Handle	\$59.75
NF1	12-00082	Set of 5 needle files w/o Handle	\$56.75
NF-F	12-00083	Flat needle file	\$14.80
NF-K	12-00084	Knife needle file only	\$5.35
NF-R	12-00085	Round needle file only	\$14.65
NF-S	12-00086	Square needle file only	\$14.65
NF-T	12-00087	Triangle needle file only	\$13.70
RIF-1	12-00088	Set of 5 Riffer files w/ Handle	\$61.80
RIF1	12-00089	Set of 5 Riffer files w/o Handle	\$55.75
RIF-F	12-00090	Flat Riffer file only	\$14.50
RIF-H	12-00091	Half-round Riffer file only	\$14.60
RIF-R	12-00092	Round Riffer file only	\$13.70
RIF-S	12-00093	Square Riffer file only	\$14.60
RIF-T	12-00094	Triangle Riffer file only	\$14.60
LNF-1	12-00095	Set of 5 Large needle files / no handle	\$63.85
LNF-F	12-00096	Flat Large needle file only	\$17.70
LNF-H	12-00097	Half-Round Large needle file only	\$17.50
LNF-R	12-00098	Round Large needle file only	\$16.95
LNF-S	12-00099	Square Large needle file only	\$16.95
LNF-T	12-00100	Triangle Large needle file only	\$16.95
NFH	12-00101	Needle File handle only	\$5.35

SANDING BLOCKS & FLEXI-STRIPS



These versatile sanding blocks are ideal for sanding large areas, creating straight edges, producing dihedral angles, profiling leading edges, feathering trailing edges, and more. The sanding blocks are coarse grit on one side and fine grit on the opposing side. The flexible grit strips can be cut and shaped to any form, external or internal.

Model #	Part No.	Description	Price
SB140	12-00064	140mm x 51mm Coarse one side, fine opp.	\$30.99
SB280	12-00065	280mm x 51mm Coarse one side, fine opp.	\$42.70
SB560	12-00066	560mm x 51mm Coarse one side, fine opp.	\$62.90
FXT-103	12-00060	51mm x 280mm Fine Grit Strip	\$14.65
FXT-104	12-00061	51mm x 280mm Coarse Grit Strip	\$14.65
FXT-106	12-00062	51mm x 140mm Fine Grit Strip	\$12.50
FXT-107	12-00063	51mm x 140mm Coarse Grit Strip	\$12.50

3/8" INCH NEEDLE FILE KIT WITH HANDLE

Set of 5 files: Hand, Round, Halfround, Square and 3-Square Extremely versatile tools, popular for detailed work. These file cuts in any direction and does not clog easily. Cuts quickly leaving an excellent finishP/N 12-01752\$68.75

LARGE NEEDLE FILE HANDLE



Comfortable plastic handle with brass collet to accept all large (18cms) needle files. Overall length 115mm. Collect 5mm. P/N 12-00166\$5.35

COMPOSITE SAFETY EQUIPMENT

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INVISIBLE GLOVES #1211

Invisible Gloves #1211 are a soft paste-like substance that when applied to hands provide protection against caustic and carcinogenic chemical products including hydraulic fluid, paints, ink, MEK, zinc chromate, jet fuel, graphite, engine exhaust by-products, adhesives and much more. Invisible

Gloves meets military and industrial safety standards and can protect any area of the body (hands, arms, face, legs, etc...) exposed to hazardous products. Especially useful in working with materials used in composite aircraft construction. One pint yields 100 pair of gloves. Invisible Gloves #1211 are easily removed with water. Allows complete freedom of hand and finger movement. Hands will not heat up and tools will not slip.....P/N 12-15800 **\$8.85/pint**



RAVEN GLOVES

Powder-Free Nitrile. Superior Puncture & Abrasion Resistance. Latex-Free Textured Grip Beaded Cuff Ambidextrous. 6 mil Nitrile. Sold in boxes of 100 gloves.

Medium.....P/N 01-01402 **\$22.85**
 LargeP/N 01-01403 **\$18.95**
 X-Large.....P/N 01-01404 **\$18.95**
 XX-LargeP/N 01-01406 **\$22.85**



THICKSTER GLOVES

Lightly Powdered Exam Grade Latex. Extra Thick Latex Protection. 12" Length for Added Protection. Textured Grip. Beaded Cuff. Ambidextrous. 14 mil Latex. Sold in boxes of 50 gloves.

Medium.....P/N 01-01394 **\$20.85**
 LargeP/N 01-01395 **\$21.50**
 X-Large.....P/N 01-01396 **\$21.50**
 XX-LargeP/N 01-01397 **\$21.50**



SERIES 8 WASH-OFF HAND PROTECTION

SERIES 8 - A less expensive "clone" of the famous PR88 hand creme developed in Europe. Series 8 is highly recommended by Rutan Aircraft Factory for working with epoxies. It protects hands from most epoxies, grease, oil paint, paste, gasoline, tar, lacquer, acetone, styrene, fiberglass and many more substances. It helps prevent chapping, cracking and drying of hands, and is an excellent aid to persons with sensitive skin. No soap is needed for cleanup - hands wash clean with water alone. 32 Oz. (Qt.) Plastic Jar

P/N 13-38306 **\$32.75**

PLY NO. 9 PROTECTIVE HAND GEL

Provides a thin, invisible, flexible film which is an excellent barrier to epoxy resins, rubber adhesives, vinyl plasticizers, polyester resins and glass fibers. Epoxy and gel wash off easily in soap and water.

One-Lb. Jar P/N 01-36100..... **\$14.50**



DENATURED ALCOHOL

Can be mixed with soap and water. Is harmless to rubber. Use as a solvent for thinning, removing and cleaning epoxy, brushes, and equipment.

GallonP/N 01-00399 **\$24.99**

REPLACETONE

Cleans polyester and epoxy resins from tools and hands without the hazards associated with chemical cleaning solvents. It is a non-volatile, non-flammable, and a biodegradable replacement for acetone and MEK solvents. Replacetone separates resins to the bottom of the cleaning container, but it does not dissolve them. Pour off non-emulsified Replacetone and use again.

Quart.....P/N 01-08823 **\$15.85**
 GallonP/N 01-08834 **\$39.95**



COTTON GLOVES

Lightweight liners - wear under latex gloves. More comfort, improved sensitivity.

P/N 01-36600 **\$1.15/Pair**

BUTYL CHEMICAL RESISTANT GLOVES

These gloves are resistant to the permeation of epoxy resins and curing agents and have been found to offer by far the best protection of any glove available.

Size - 9 equal to a Large size glove
 P/N 01-36700..... **\$46.50**



ASTRO GRIP™ NITRILE DISPOSABLE GLOVES

Astro-Grip™ Dual-Sided Scale Grip Disposable. Powder-free nitrile. Thickness: 6 mil. Dual-sided scale textured surface for superior grip. High visibility safety orange color. Non-latex. Exceptional chemical and puncture resistance. Maximum comfort for extended wear. 100 gloves per box.

XX-LargeP/N 01-01536 **\$26.90**



WORX DISPOSABLE LATEX GLOVES

5mil Latex powder free Industrial gloves. General Purpose Lite Duty Gloves. Size: Large Excellent Dexterity.

Pack of 100P/N 01-01586 **\$17.95**



TYVEK SUITS

DuPont Tyvek CVCH11 Disposable Coveralls are made of Tyvek - a tough polyolefin material - which provides the best balance of protection, durability and comfort. These lightweight overalls feature a great range of movement while stretching and bending, improved mobility, a tailored fit and reinforcement in high stress areas. Zipper front, attached hood and elasticized wrists and ankles create a hard-to-penetrate seal for contaminants. DuPont Tyvek Suits are perfect for use against such non-hazardous materials as dirt and grime, animal waste, paints, oil and grease, lubricants or hazardous materials including: fertilizer, pesticides, asbestos, lead, chromium, mold, fiberglass and radioactive particles. Available in extra large or extra extra large.

X-Large.....P/N 01-36800 **\$12.90**
 XX-Large.....P/N 01-36805 **\$12.50**



MAXSHIELD DISPOSABLE PROTECTIVE CLOTHINGS

RECYCLED TYVEK® APRONS

The Better-Than-Plastic Apron. A regular throw-away plastic apron might be good enough for small jobs. But for complete protection from food splashes, hot oil, dangerous chemicals, and other big messes, the serious professional chooses a Tyvek® apron.

Features: • Bib style for full protection. • 28" x 36" in size.
 • Serged seams for strength. • Long ties to customize the fit.
 P/N 12-01824 **\$3.50**



TYVEK® DISPOSABLE SHOE COVERS

Boot Covers High top boot covers w/elastic top.
 P/N 12-01825 **\$3.60**



TYVEK® DISPOSABLE SHOE COVERS

Tyvek® 400 FC -- a DuPont™ Tyvek® protective fabric with a skid resistant friction coating. Used exclusively for shoe and boot covers and skid-resistant booties in select Tyvek® coveralls.

Color: Gray.....P/N 12-01995 **\$1.79**

