SPECIALTY TOOLING WAXES

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Scan for website

FREEMAN MACHINABLE WAX

Formulated and manufactured by Freeman, this extremely hard, synthetic material machines faster than polyurethane and epoxy tooling boards or metals without sacrificing quality of finish, surface detail, or dimensional accuracy. Standard and custom sizes are available.

Machinable Wax Features

Non-abrasive

Unlike metal or tooling boards, Machinable wax will not cause significant wear on cutting tools.

User-friendly

Machining produces chips instead of dust for a cleaner work environment

Able to be glued

Produces large or irregularly-shaped pieces for machining with the use of 3M #90 Spray Adhesive (page 58).

Self-releasing / self-sealing

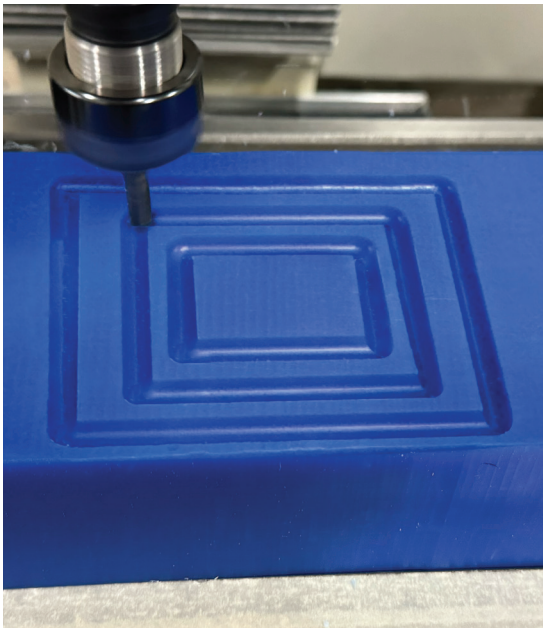
Pour liquid tooling plastics (including epoxy, urethane and silicone rubber) against Machinable Wax without requiring the use of sealers or release agents

Self-lubricating

Enables all machining operations to be performed without the need for coolants or cutting fluids

Variety of sizes

Wide variety of sizes. Eliminates the waste associated with using large tooling boards for smaller projects



Specifications

Hardness (Shore D)	50-55
Surface Finish	Excellent
Fine Detail	Good
Proofing	Excellent
Flexibility	Excellent
Thin-Walled Sections	Good

Machining Guidelines

	Spindle Speed (rpm)	Feed Rate (in./min.)
Roughing	3,000	100
Finishing	8,000-10,000	40-100

Data obtained using a ½" ball end mill

Applications

- **Molds and prototypes:** creates accurate reproductions
- **CNC:** demonstrations or proofing machining programs
- **Education:** as a training aid and project material
- **Medical/Dental:** models for proton therapy or dental work

Online Resources

Scan the QR code for more on our website:

Instructions for Machinable Wax reclaiming procedures.

SHEET WAX

Freeman Sheet Wax is used primarily to simulate metal or part thickness when making metal forming dies or punches, resin transfer molds (RTM), or any two-part molds requiring a uniform part thickness. Formulated and manufactured by Freeman, these waxes are available in most thicknesses from .007" to .394" with a tolerance of ±.002". When ordering, specify the type, backing, and thickness you require. Custom thicknesses are available with a 5 box minimum.

266 Hi-Temp Thermo-Stable Sheet Wax

Our most popular sheet wax, this medium brown wax was developed primarily for use with tooling plastics to prevent wax deformation under exothermic heat conditions.

Availability: *12" x 24" plain or adhesive-backed sheets*

- More flexible than 165 Regular Sheet Wax – forms quickly and accurately to any contoured surface
- Natural draping characteristics at room temperature and absence of memory (spring-back) eliminate the need to warm or temper wax
- Melting point of 282°F
- Adhesive can be applied manually with Sprayway SW382 Fast Tack Adhesive (page 58)

165 Regular Sheet Wax

This yellow-colored wax is formulated for durability and translucency.

Availability: *12" x 24" plain or adhesive-backed sheets*

- Firm surface for durability and depression resistance
- Translucency of sheets up to ⅛" thick, excellent for visualizing layout lines and transcribing engineering information
- Melting point of 177°F
- Adhesive can be applied manually with Sprayway SW382 Fast Tack Adhesive (page 58)

Master HT-260 Regular Sheet Wax

Formulated to withstand high temperatures, this wax was developed for casting and laminating resins that either require or give off heat during curing.

Availability: *12 x 24" plain or adhesive-backed sheets*

- Extremely pliable
- Melting point of 260°F
- Adhesive can be applied manually with Sprayway SW382 Fast Tack Adhesive (page 58)

Sheet Wax Application Procedure

Step 1

Remove the backing from the self-adhesive wax sheets or apply Sheet Wax Spray Adhesive per directions on plain sheet wax.

Step 2

Position wax sheets onto model or tool. Use butt joints or the 'overlay and cut' jointing technique.

Step 3

Roll to extrude air bubbles for a flat, even surface.

Step 4

Accurately fit subsequent pieces.

Step 5

Consolidate corners using filleting tools.

Step 6

Repair imperfections in joints by using Master Gap Wax (page 47) or Protolina Modeling Clay (page 77).

FILLET WAX & ACCESSORIES

Specifications

	Ring & Ball Softening Point (±6 °F)	Specific Gravity
Freeman Fillets	179	0.915
Master Fillets	173	0.925
Master Marble Fillets	169	0.919
Master Bond Fillets	168	0.917
Di-Dup Fillets	156	0.917
String Wax Di-Dup	156	0.917
String Wax Fillet	179	0.915
Half-Round Wax	179	0.915

Freeman Wax Fillets

Freeman Wax Fillets are made of a performance-proven, high melting point wax formulation for meeting a wide variety of pattern shop applications.

Availability: *2 lb. boxes containing 24" long strips - total length up to 1,640' with 1/16" round and radii ranging from 1/8" to 1". Also avaiable in continuous roll with 1/32" to 1/16" round and radii ranging from 1/8" to 1/2" and lengths from 40' to 1500'.*

Master Wax Fillets (Summer Formula)

Primarily used for master patterns, this wax offers patternmakers a quality product that is easy to apply, produces accurate results and is economical. This "summer" formula is harder and will not become prohibitively soft in warmer environments.

Availability: *2 lb. boxes containing 24" strips with radii from 1/8" to 3/8" and lengths from 24' to 1152'; 1/2" lb. to 1" lb. rolls with radii from 1/8" to 5/8" and lengths from 40' to 1500'; also available in 1/32" and 3/64" round continuous rolls and 1/16" round strips.*

Master Marble Wax Fillets (Winter Formula)

This specialized blend of waxes is formulated specifically for the cultured marble industry. It produces a smooth radius on synthetic marble products. Under most normal working conditions, this wax adheres to the cultured marble mold without the use of heated fillet tools. This "winter" formula is softer and retains malleability in colder temperatures.

Availability: *2 lb. boxes containing 24" strips with radii from 1/8" to 1/2", lengths from 106' to 1152' total.*

Master Bond Wax Fillets

This is a soft, self-adhering wax compound for the full-mold process and is used to apply a smooth radius to a foam pattern. The wax burns at a rate equal to 1.1 lb./ft.^{3} density foam, eliminating inclusions.

Availability: *2 lb. boxes containing 24" strips in radii from 1/8" to 3/4", lengths from 44' to 1152' total.*

Freeman Di-Dup Wax Fillets

Freeman Di-Dup Wax Fillets are softer than our standard wax fillets and also have a lower melting point. These two features make them ideal for creating inside radii on expanded polystyrene foam patterns.

Availability: *2 lb. boxes containing 24" strips with radii from 1/4" to 3/4" and lengths from 35' to 350' total.*

Freeman String Wax

String Wax is a round wax product that, when melted, is used as an adhesive to secure investment casting wax patterns to the gating system or for general wax pattern repair.

Availability: *1/8" dia. x 880' long in rolls, and 1/4" dia x 292' total length in boxes. Di-dup style available in 1/8" dia. x 440' long in rolls.*

Freeman Half Round Wax

This specialty wax is extruded to a uniform half round shape making this material ideal for mold registration when applied to the parting line of a mold surface. Manufactured using our Fillet Wax formulation, this material will not inhibit the curing of silicones, urethanes, or plasters.

Availability: *2 lb. boxes containing strips in radii from 1/8" to 3/8" and widths from 1/4" to 3/4".*

Fillet Tools

Freeman's high-quality, chrome-plated steel ball-end Fillet Tools are manufactured to accurate diameters to correctly and easily install wax or leather fillet.

Availability: *four sizes with radii from 1/16" to 5/8". Each size of tool has a different sized ball on each end.*

Alcohol Lamp

This chrome-plated brass lamp comes complete with snuffer cap attached by chain and an adjustable cotton wick. The 7" long cotton wick raises and lowers by hand screw.

Availability: *sold individually.*

OTHER WAXES

Specifications

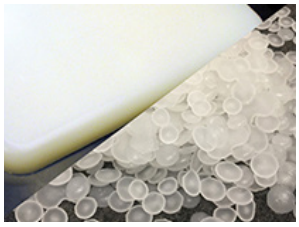
	Softening Point (°F)	Specific Gravity	Ash Content (%)
Optical Soluble	136-153	0.92	–
Sol-U-Carv	137-147	1.38	–
Ferris 2283-A Green	140-150	1.21	–
Beeswax	144-149	0.95	–
MicroCrystalline	178	0.9	0.002
Sculpture (Yellow)	180	0.9	0.002
Sculpture (Brown)	167	0.9	0.002
CSM Optimus 3.0	165-175	0.91	–
Master Gap Wax	145	0.9	–
Tapping	177	0.9	–
Fixture Wax	136	0.9	–

Blind Gauging Wax

This wax is specifically formulated for checking clearances between the fan and casing during repair and maintenance of jet engines. It is produced to precise thicknesses from .015" to .105".

Availability: *½" x 1¼" adhesive-backed strips, 100/box.*

Optical Soluble Wax



This high-quality investment casting wax is formulated for the optical and jewelry industry. It is completely soluble in warm water and ideal for making any design where a hollow area in the finished pattern is desired. It is also used in the optical industry for manufacturing intraocular lenses.

Availability: *50 lb. boxes of slabs or beads*

Sol-U-Carv

A carvable wax that is water soluble, making it ideal for use in lost wax casting, especially in the making of cores, hollow beads, or other pieces that feature hollow areas.

Availability: *1 lb. boxes.*

Ferris 2283-A Green

This premium grade, non-filled, water soluble wax creates pattern cores that capture the finest details. It is easily hand cast or injected between 150°F to 170°F (66°C to 77°C).

Availability: *1 lb. boxes.*

Beeswax

Our pure filtered Beeswax is a firm, light-colored wax used for modeling, engraving, and finishing leather, textiles, and wood.

Availability: *1 lb. boxes.*

MicroCrystalline Wax

This light-yellow, low-odor, petroleum-based wax with a soft, sticky feel can be used for parting compound, sealant, paper coating, or encapsulating electronic components.

Availability: *10 lb. 1½" x 11¾" x 19" slabs.*

Sculpture Wax

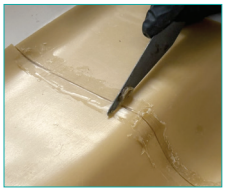
These petroleum-based waxes remain flexible at low temperatures, are very easy to carve, offer good surface finishes and have superior adhesive qualities. They are most commonly used as adhesives and sculpting waxes, but can also be blended for candle-making.

Availability: *3.5" diameter x 18" length 4.5 lb. billets in yellow or brown.*

CSM Optimus 3.0 Wax

Formerly "Victory Brown Wax", this brown wax is less crystalline than paraffin wax and remains flexible at low temperatures. It may be used as an adhesive, in investment castings, and blended in for candle-making. Easily molded by hand, it may also be used as a sculpture wax.

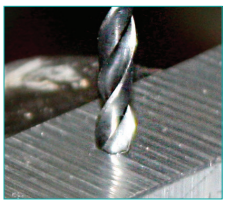
Availability: *1¼" x 12" x 19" 11 lb. slabs.*

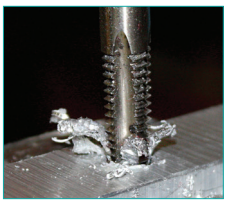


Master Gap Wax

This soft, brown wax quickly and easily fills gaps in sheet wax at room temperature. It applies much smoother and faster than clay and cleans up quickly. Apply with a spatula and remove excess with a plastic scraper.

Availability: *quarts or gallons.*





Tapping Wax

Designed to make cleanup after tapping threads faster and easier, simply place a Tapping Wax stick in the drilled hole. After reaming and tapping, the wax will collect the debris, eliminating the hassle of cleaning out compacted metal shavings.

Availability: *4.5 lb. billets or 1 lb. boxes in various diameters.*

Fixture Wax

Once melted to a liquid form (approx. 200°F), Fixture Wax is a castable compound used to encapsulate, stabilize and fixture small or delicate parts for precision machining or finishing. It can increase machining accuracy and reduce both working time and scrap.

Availability: *1 lb. trays or 44 lb. boxes of 4 slabs.*