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Glenmarc now manufactures Vagabond MODEL-CAST, a unique line of non-cellular, free-pour, non-rising, quick-cast, hydrocarbon extended polyurethane casting resins. It is a two-component system that is ideally suited for a wide range of finished part applications. Wood and metal product manufactures, model-makers, pattern-makers and mold-makers will find many applications in which MODEL-CAST will reduce material and tooling costs, increase production rates and provide a superior end product. MODEL-CAST is available in various degrees of hardness, flexibility, strength and gel times. We can recommend the formula that is suitable for your needs. MODEL-CAST has a demold time of four to five minutes which permits efficient production rates. It's low reaction temperature and relatively high flash points provide for safer handling than polyester resins. The low viscosity of MODEL-CAST components result in absolute replication of detail and permit the introduction of low cost fillers to reduce material costs. Our customers are currently using MODEL-CAST for the following products and applications:

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| Aeronautic model kits                    | Lamp bases                              |
| Anatomical models                        | Locomotive model kits                   |
| Anthropological replicas                 | Miniatures                              |
| Architectural models                     | Musical instrument components           |
| Automotive model kits                    | Pistol grips, rifle stocks and forearms |
| Clock, mirror and picture frames         | Plaques and trophy bases                |
| Decorative wall and shelf items          | Prototypes and masters                  |
| Doll Houses                              | Sealing and adhesive applications       |
| Electronic potting compounds             | Taxidermy replicas                      |
| Figurine model kits and bases            | Toy prototypes                          |
| Furniture patterns and replacement parts | Vacuum forming tools                    |
| Industrial part fabrication              | Wood and rock replicas                  |

#### GENERAL INSTRUCTIONS FOR USE

1. MODEL-CAST is formulated to be mixed one to one by volume. The material will tolerate an off-ratio of five to ten percent without noticeable degradation of quality. Some special formulas are formulated to be mixed one to two by volume. The ratio instructions will be indicated on the product label.
2. MODEL-CAST is formulated to be stored and used at or above seventy degrees F. Material used at a lower temperature will gel slower. If the 'A' side temperature drops to fifty degrees F or lower the extenders will separate out and the material will be unusable. The separation is reversible by raising the temperature to seventy degrees F and agitating the containers to mix the ingredients back into solution. Material used at higher than seventy degrees F will result in a faster gel time. Casting quality will not be effected.
3. MODEL-CAST components are very hygroscopic. Exposure to moisture will seriously effect performance by causing a foaming action and separation of extenders. It is an indication of moisture presence in the material or filler if the material rises when the 'A' side and 'B' side are mixed together. Avoid introduction of moisture during all stages of the casting evolution. Reseal containers immediately after pouring. We do not recommend using bottles with squirt or pump tops because they suck in air and the MODEL-CAST will absorb moisture from the air. Use only polyethylene, glass or un-coated paper cups for mixing. The wax coating on some paper cups and styrene foam cups are also incompatible. We sell one ounce plastic measuring cups. The price is listed on our MISCELLANEOUS PRODUCTS PRICE LIST.

4. MODEL-CAST components are very miscible with a minimum of mixing effort. The 'A' side of the material should be poured into the mixing cup first. The 'B' side of the material should be poured in on top of the 'A' side and stirred for about thirty seconds with a wooden stir stick to mix thoroughly. Large quantities can be stirred with a Jiffy Mixer attached to a drill motor. Care should be exercised to mix the material thoroughly but not to excess, which can cause air bubbles. We do not carry Jiffy Mixers but they can be purchased from Urethane Services, Incorporated. Their address and phone number is listed on page four.
5. MODEL-CAST should be poured into the mold before the gel time that is specified for each formula. Most gel times are two to three minutes. You will find the gel times listed on our MODEL-CAST FORMULA LIST. Care should be taken to not disturb or move the mold when the resin begins to gel. De-mold the part when it no longer feels rubber-like to the touch. Normally this takes about four to five minutes. You will have to judge de-mold time for the amount of material poured and the size and shape of the part. If the part is left in the mold to long it will be difficult to de-mold and mold life will be shortened. Place the finished part on a wood insulated surface to completely cure. A metal or plastic surface will cause unequal cooling and possibly warping. We recommend curing for twenty-four hours at room temperature. Shrinkage is approximately one percent and depends on the size and shape of the part. Any sanding, painting or other finishing work can be done when the part is completely cured. Any paint that is not water based can be used. Water based paints will not adhere to the surface of the finished part.

## FILLERS

A wide range of fillers can be used with MODEL-CAST. They can cut the cost of material, reduce shrinkage and decrease or increase the weight of the finished part. Fillers should be mixed equally into both sides of the system prior to final mixing of the 'A' side and the 'B' side. They should be stirred prior to final mixing because they tend to settle to the bottom of the storage container. The filler will increase the viscosity of the MODEL-CAST. The amount of filler used is limited only by your requirements for pourability and desired detail of the finished part. All fillers used must be dry. Porous fillers such as Perlite cannot be used because absorbed liquids cannot combine with other liquids. Wood, nutshells or sawdust fillers cannot be used because they contain moisture. We find that heating these fillers to dry them does not always work. Glass beads and glass bubbles work very well with MODEL-CAST. We do not carry glass beads and glass bubbles but they can be purchased from PQ Corporation. Their address and phone number is listed on page four.

## PIGMENTS

We carry foam-tint pigments that are manufactured by Kirsch Industries, Inc. They should be mixed into the 'B' side of the system prior to the final mixing of the 'A' side and the 'B' side. They should be stirred often because they tend to settle to the bottom of the storage container. To achieve a pastel color you would mix a maximum of five percent per volume into any of our MODEL-CAST formulas that are white, off-white or tan. Different amounts of pigment will produce shades from light pastel to dark pastel. To achieve a true color you would mix a maximum of two and a half percent per volume in any of our MODEL-CAST formulas that are clear. Using the maximum amount will achieve a solid true color. Using very small amounts will achieve a see-through effect. You can mix colors and add any quantity below the maximum to achieve a variety of colors. The mixing ratios will be listed on the containers. The colors, quantities and prices are listed on our MISCELLANEOUS PRODUCT PRICE LIST.

## MOLD MATERIALS, THINNER, RELEASE AGENTS AND BARRIER COATS

We recommend the use of RTV silicone rubber mold material. We carry GI-1000 RTV Silicone Rubber. It is an extremely high tear, high tensile strength, two-component, tin catalyzed RTV silicone rubber. The low viscosity offers exceptional reproduction capability and allows for easy mixing and de-airing. It can be used without a release agent and obtain about thirty to fifty pulls. A release agent can double the amount of pulls. Molds should be warmed prior to use. A cold mold will have adverse effects. Product information and instructions are provided. The quantities and prices are listed on our MISCELLANEOUS PRODUCT PRICE LIST.

GI Thinner can also be used to prolong mold life. It is a water clear, low viscosity, non-reactive silicone fluid which can be added to the GI-1000 RTV

Silicone Rubber when making molds. It can also be wiped onto molds with a cloth to rejuvenate the mold and protect it while in storage. Product information and instructions are provided. The price is listed on our MISCELLANEOUS PRODUCTS PRICE LIST.

We recommend using a release agent to prolong mold life. We carry Ultra 4 Polyurethane Release Agent. It is an excellent paintable release agent that is suitable for use with silicone rubber molds. It is recommended that it be used sparingly for best results and is available in convenient spray cans. It must be washed off with dish detergent prior to painting and finishing. The price is listed on our MISCELLANEOUS PRODUCT PRICE LIST.

MODEL-CAST is also formulated for use with latex, polyurethane, polyethylene, fiberglass and other mold materials if a suitable release agent is used. We recommend Mavcoat GHS Engineered Release Coating that is manufactured by Maverix Solutions, Inc. We do not carry Mavcoat GHS but their address and phone number is listed on page four. Mavcoat GHS Engineered Release Coating can be thinned with methylene chloride or VM&P Naptha. It is applied sparingly with a cloth or spray gun. It is not paintable and cannot be washed off. You can also use a liquid or paste wax release for these mold materials. The wax does have the disadvantage of requiring removal before painting and finishing. We do not carry any wax releases.

A Barrier Coat is recommended for large production runs to increase mold life. You can obtain approximately three to four hundred pulls. A Barrier Coat is an alcohol-based lacquer that must be thinned with Barrier Coat Thinner. It is applied to the mold in a thin, uniform coat with a spray gun. It should be allowed to dry approximately three minutes before pouring MODEL-CAST into the mold. The Barrier Coat will chemically bond with the MODEL-CAST and become the base coat on the finished part. It cannot be washed off but is paintable. We do not carry Barrier Coat and Barrier Coat Thinner but we recommend Lilly Industrial Barrier Coat and Barrier Coat Thinner that can be purchased from Cal Western Paint Supply. Their address and phone number is listed below.

## INERT GAS BLANKET

We carry Bloxygen. It uses a blend of Nitrogen, Carbon Dioxide and Argon gases to purge the air out of the MODEL-CAST containers and block oxygen from the liquid surface while in storage. The price is listed on our MISCELLANEOUS PRODUCT PRICE LIST.

## STORAGE, SAFETY AND MATERIAL SAFETY DATA SHEETS

MODEL-CAST should be stored in the original containers in a cool, dry and well ventilated area. The containers should be kept tightly closed when not in use. Large quantities can be transferred to smaller empty containers you can purchase from us. The sizes and prices are listed on our MISCELLANEOUS PRODUCT PRICE LIST. Use the caps and pour spouts provided by us. Wash at the end of each working session and before eating, drinking or using the toilet. Wear safety goggles and rubber gloves. Never touch eyes or face with hands that have been contaminated with the product. Avoid prolonged breathing of the vapors and repeated contact with skin. Use adequate ventilation. We recommend a fan to bring in fresh air and a second fan to push out used air. Read and follow the instructions on the product label. Review and keep on file the Material Safety Data Sheets that are provided in every shipment of MODEL-CAST.

Material Safety Data Sheets are also sent in every shipment with every item on our MISCELLANEOUS PRODUCT PRICE LIST that requires one. Product information for these items is provided in your first shipment and upon request thereafter.

### RECOMMENDED SOURCES

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| Jiffy Mixers                              | Urethane Services, Inc.<br>Torrance, California         | 800-521-3242 |
| Glass beads and bubbles                   | PQ Corporation<br>Valley Forge, Pennsylvania            | 800-756-1456 |
| Mavcoat GHS<br>Engineered Release Coating | Maverix Solutions, Inc.<br>Irvine, California           | 714-501-6383 |
| Barrier Coat and Thinner                  | Cal Western Paint Store<br>Sante Fe Springs, California | 562-693-0872 |

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