SHARE IN THE TRADE SECRET THAT ALL PROFESSIONAL RESIN CASTERS USE

VAGABOND MODEL CAST RESINS®

#1 MOST POPULAR MODEL CASTING RESIN FOR AMAZING MODELS FOR OVER 25 YEARS

- 1:1 EASY MIX RATIO
- THINNEST VISCOSITY FOR FINEST OF DETAILS
- FAST DEMOLD TIMES
- EASILY PAINTED
- HIGHEST QUALITY
- WE MANUFACTURER ALL OUR RESIN FORMULAS
- PURCHASE DIRECT

ALL RESINS AND MOLD RUBBERS SHIP THE SAME DAY

THE VAGABOND JUG MEN

MANY URETHANE FORMULAS TO SELECT FROM

MOLD MAKING RUBBER SILICONES

GLENMARC HAS A FULL LINE OF CASTING RESINS, SILICONE MOLD MAKING MATERIALS, PIGMENTS, CASTING SUPPLIES, MOLD RELEASES, RESIN MIXING EQUIPMENT

GLENMARC FOUNDED 1968

COLORED PIGMENTS

MOLD RELEASE

GLENMARC INDUSTRIES INC.
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Chicago, IL 60608
PHONE 312-243-0800 FAX 312-243-4670
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PIONEERS IN PLASTICS

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VAGABOND MODELCAST INFORMATION

Glenmarc manufactures VAGABOND MODELCAST, a unique line of free-pour, quick-cast, 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 VAGABOND MODELCAST will reduce material and tooling costs, increase production rates and provide a superior end product. VAGABOND MODELCAST is available in various degrees of hardness, flexibility, strength and gel times. We can recommend the formula that is suitable for your needs. VAGABOND MODELCAST has a de-mold 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 VAGABOND MODELCAST components result in absolute replication of detail. VAGABOND MODELCAST resins are not only less expensive to tool and produce then conventional materials but will usually outperform their plastic, rubber, and metal counterparts.

Our customers are currently using VAGABOND MODELCAST for the following products and applications:

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

WHY BUY VAGABOND RESINS FROM GLENMARC INDUSTRIES, INC.?

There are other resins companies out there to buy from, some even lower priced. Glenmarc Industries formulates their resins based on a very high quality product. Because we listen to our customers and believe in providing top quality products with superior physical properties we are constantly outperforming the competition. We have many dedicated serious resin casters who have used our products for over 15 years and refuse to use any other company's resins. Usually once a resin caster professional samples our resins and compares them to other competitive products in the market place we always will win their business. Glenmarc Industries prices there resins very competitively especially when you compare the quality of the formula and the high quality USA made ingredients that make up our resins.

Is a lower priced resin a good value, should this be the main factor in selecting a resin? A lower priced resin is not always the bargain it may seem. It's not hard to make a very low cost resin, import from Asia low cost and low quality raw resin ingredients, than load then up with cheap extenders and fillers instead of expensive Isocyanates and Polyols. Typically extenders are less than half the cost per pound of a high quality Isocyanate or Polyol. Some competitive type products will use up to 50% of extenders which are much less costly to formulate but are not as reliable, stable, and durable as Glenmarc VAGABOND MODELCAST resins. All Glenmarc VAGABOND MODELCAST resins are formulated with less than 10% of extenders, although it is more costly to formulate this way it makes for a better product. This is why our resins are easier to work with and are durable, long lasting, and very stable products. One way to tell if a product is loaded up with extenders is to check the weight of the final material that is being sold, since extenders are typically less dense than Isocyanates or Polyols a material that is loaded up with these will be less dense and lighter. A 10 gal set or resin and hardener should weigh about 91 pounds, 49 pounds for the 5 gallon side of resin and 42 pounds for the 5 gallon side of the hardener, if the weights from a competitor's product are lighter that this you should be aware that it may be loaded up with cheaper extenders and fillers making an inferior material.

Do you use top quality raw ingredients all made in the USA? Glenmarc uses only the top ISO9002 suppliers of resin and hardener base chemicals from companies such as shell chemical, BASF, Huntsman, and Hexion. While we do strive to price our resins as competitively as possible we will always purchase high quality made in the USA formulating ingredients.

Are all resin formulas in the market place pretty much equal? No not really. VAGABOND MODELCAST resins have been formulated by expert chemists and have been perfected over 15 years of use in the most demanding resin casting studios, labs, museums, and factories. We have developed all our own proprietary formulas that can only be purchased through us; we do not re-sell other companies pre-made resin materials. All our resin formulas are made in our own manufacturing facility in Chicago, IL, USA to exacting standards. Did you know that our most popular casting resin formula our 36XXX is made from a complex set of formulation ingredients? The A side is made with over 2 different types of isocyanantes and 2 different types of extenders. The B side is formulated with 5 different types of Pluracols, 2 types of Polyols, and 2 types of extenders. Each one imparts a certain characteristic of the final resin material and is what makes our resin products so unique. Many competitor's products are made with very few different types of Isocyanantes and Pluracols because it is easier and less costly to make this way, that is why the material properties of the resins are different than ours. Really the formulas and knowledge behind them is King in this business.

What about the Customer Service? We have been operating since 1968. We are dedicated to customer satisfaction, we are large enough to meet your most challenging projects and large volume resin orders yet still small enough to provide personal service such as small custom resin batches, custom formulation, tweaking formulas to customer's needs, great tech help, and fast shipping. All of our products can be shipped the same day even if we receive an order as late as 4:00 PM central time. We are centrally located in the USA in Chicago which allows us to ship to all states in the USA fast, economically, and easily. We also have a great long track record of keeping a needed formula in current production. There is nothing more frustrating and wasting of time than to perfect your casting operation with a certain manufacturer's formula only to have them go out of business, change around the products, be out of stock, or not be able to support their resin product lines.

We have a long history of production dating back some 35 years. All the exact formulas that have been available for the last 15 years or more from us can still be purchased and shipped the same day, how many resin companies can say that? In the age of the internet we get calls all the time from frustrated resin casters who found what they thought was a cheap source of resin from a quick search on the internet from a competitor claiming to be a lower cost better resin source, only to have this source of resin go out of business, be difficult resin to cast and de-mold due to a cheap inferior resin formula, or be four weeks out of stock at some critical time when they needed the resin material the most to make an important deadline. We are very aware of your trust, time and investment that you have made in selecting, using and perfecting a resin formula and especially the company who backs it up. We guarantee to support the product and formula as long as possible, in many cases we have formulas still available some 15 years after they were first introduced. We are a "brick and mortar" company with a lab on premise and full manufacturing factory as well as technicians and customer service personnel. Although we do have a website presence we are not just an "online only store". If you use our VAGABOND MODELCAST resins you will have the confidence of knowing that you are selecting a company which has been providing same day shipping of quality resin formulas since 1968 and providing superior customer service and meeting the needs of our customers as part of our continuing tradition of excellence for over 35 years.

What about the VAGABOND MODELCAST formulas? VAGABOND MODELCAST formulas are low viscosity of 70 cps to aid into flowing easily into molds for exact detail replication. Most VAGABOND MODELCAST formulas are easy mix ratio one to one by volume. VAGABOND MODELCAST has a de-mold time of four to five minutes which permits efficient production rates. Gel times are approximate and based on a working temperature at or above 70 degrees F. VAGABOND MODELCAST can be pigmented and painted. Use a non-water based paint or primer to seal before painting. Fillers can be used to increase or decrease weight of finished parts. We recommend using RTV silicone rubber mold material with a release agent or barrier coat to prolong mold life. VAGABOND MODELCAST can be used with latex, polyurethane, polyethylene, fiberglass or other mold materials if a suitable release agent is used. For more information please see VAGABOND MODELCAST general use instructions brochure.

Material Safety Data Sheets are provided with every shipment please read before use.
Please read our brochure and follow all instructions and guidelines provided.

The information contained in this brochure is based on sources believed to be accurate to the best knowledge of Glenmarc Industries, Inc. It is offered in good faith, but without guarantee since conditions of use are beyond our control. Glenmarc Industries, Inc. assumes no legal responsibility. The user assumes all risks of use.

VAGABOND MODELCAST FORMULA LIST

36XXX OFF WHITE

This low odor, low viscosity formula flows easily into molds for excellent detail replication. It is our most popular formula for projects such as model car, model airplane, model railroad, science fiction and action figure kits. The off-white color will pigment to a pastel color. Mix ratio 1 to 1 by volume.

36XXX180 3 minute gel time +/- 70D shore hardness (Most Popular)
36XXX120 2 minute gel time +/- 70D shore hardness

43321 ODORLESS WHITE

This odorless, low viscosity formula flows easily into molds for excellent detail replication. It is our most popular formula for decorative items and when you prefer an odorless product. The white color will pigment to a pastel color. Mix ratio 1 to 1 by volume.

43321W120 2 minute gel time +/- 70D shore hardness
43321W180 3 minute gel time +/- 70D shore hardness (Most Popular)

2011 CLEAR REGULAR

This odorless, low viscosity formula flows easily into molds for excellent detail replication. Although it is not water clear it is our most popular formula when you want to achieve a true solid color or a see-through effect. Mix ratio 1 to 1 by volume.

2011C120 Clear 2 minute gel time +/- 70D shore hardness

2C TAN or 2C BLACK

This hard, strong formula has a slightly higher viscosity and works well for projects such as tooling and creating masters. The tan formula will pigment to a dark pastel color, also available in black.
Mix ratio 1 to 1 by volume.

2CTAN150 TAN 2-1/2 minute gel time +/- 75D shore hardness
2CTAN210 TAN 3-1/2 minute gel time +/- 75D shore hardness
2CBLK150 BLACK 2-1/2 minute gel time +/- 75D shore hardness
2CBLK210 BLACK 3-1/2 minute gel time +/- 75D shore hardness

4032H TAN or 4032H BLACK

This hard, strong formula is popular for its high impact strength. The medium viscosity formula works well for projects requiring strength with good detail replication. The tan formula will pigment to a dark pastel, also available in black. Mix ratio1 to 1 by volume

4032HTAN120 Tan 2 minute gel time +/- 75D shore hardness
4032HBLK120 Black 2 minute gel time +/- 75D shore hardness

Other formulas are available such as flexible, high temp, and longer gel times please inquire.

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VAGABOND MODEL-CAST RESINS YEAR 2013 PRICE LIST

QUANTITY	POUND	PRICE PER POUND	PRICE PER KIT/SET
2-PT KIT all formulas	2	$8.75	$ 17.50
2-QT KIT all formulas	4	8.63	34.50
2-GL KIT all formulas	17	6.26	106.50
10-GL KIT all formulas	85	5.14	437.00
110-GL DRUM-SET #2C	950		call for price
110-GL DRUM-SET #36XXX	950		call for price
110-GL DRUM-SET #43321	950		call for price

NOTE:

1. PRICE REDUCTIONS: Frequent orders can be grouped together for quantity discounts, please call for addition information

2. PAYMENT TERMS: NET 30 - available on approved accounts
   VISA, MC, AMEX, and PAYPAL accepted

3. SHIPPING TERMS: FOB Chicago, IL
   UPS - Prepaid freight charges included on invoice
   UPS collect provide UPS account number
   Drum-set Collect via common carrier

4. Prices quoted on an individual basis for custom formulas. Various degrees of flexibility and hardness are available. Samples available upon request. Material Safety Data Sheets provided.

5. Most formulas are formulated to be mixed one to one by volume. Some special formulas are formulated to be mixed one to two by volume. The mixing ratios will be listed on the product label.

6. See our MISCELLANEOUS PRODUCT PRICE LIST for RTV silicone rubber, RTV thinner, release agents, pigments, a nitrogen blanket, measuring cups and empty containers.

MISCELLANEOUS PRODUCT YEAR 2013 PRICE LIST

RTV SILICONE RUBBER

AND THINNER PRODUCT	PART NUMBER	QUANTITY	PRICE
A&B RTV Silicone Rubber kit	VGI1000W1LB	1 LB	15.50
A&B RTV Silicone Rubber kit	VGI1000W10LB	10 LB	138.00
A&B RTV Silicone Rubber kit	VGI1000W50LB	50 LB	375.00
Thinner only	VGITHINW1LB	1 LB	19.00
Fast Activator please inquire			

RELEASE AGENT	PART NUMBER	QUANTITY	PRICE
Ultra 4 Paintable Spray Silicone Release Agent	VULTRA4	1 CAN	12.50

INERT GAS BLANKET	PART NUMBER	QUANTITY	PRICE
Bloxygen	VBLOXYGEN	1 CAN	10.25

PIGMENT COLORS	PART NUMBER	QUANTITY	PRICE
Foam-tint Pigment, Black	VPBLACKV8OZ	1/2 PT (8 FL OZ	10.25
Foam-tint Pigment, Blue	VPBLUEV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, Brown	VPBROWNV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, Green	VPGREENV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, Orange	VPORANGEV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, Red	VPREDV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, White	VPWHITEV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, Yellow	VPYELLOWV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, Black	VPBLACKV16OZ	1 PT (16 FL OZ)	18.50
Foam-tint Pigment, all other colors	VP*COLOR*V16OZ	1 PT (16 FL OZ)	21.00
Foam-tint Pigment, Black	VPBLACKV32OZ	1 QT (32 FL OZ)	31.00
Foam-tint Pigment, all other colors	VP*COLOR*V32OZ	1 QT (32 FL OZ)	36.00
Foam-tint Pigment, Black	VPBLACKV1G	1 GAL	62.00
Foam-tint Pigment, all other colors	VP*COLOR*V1G	1 GAL	82.00
Foam-tint Pigment, Black	VPBLACKV5G	5 GAL	260.00
Foam-tint Pigment, all other colors	VP*COLOR*V5G	5 GAL	360.00

MEASURING CUPS, EMPTY CONTAINERS AND VALVES	QUANTITY	PRICE
One ounce measuring cup	100 PKG	6.50
One pint empty container with cap	1 EA	1.00
One quart empty container with cap	1 EA	1.50
One gallon empty container with cap	1 EA	2.40
Five gallon empty container with ¾" valve	1 EA	13.50
Valve faucet for ¾" NPT	1 EA	2.50
Wrench for five gallon cap	1EA	14.50

PRODUCT INFORMATION VGI1000 RTV SILICONE RUBBER

DESCRIPTION

VGI1000 is an extremely high tear, high tensile strength, two-part, tin catalyzed Room Temperature Vulcanizing silicone rubber. It is designed for VAGABOND MODEL-CAST RESINS, or any polyurethane casting resin, polyurethane foam, polyester and epoxy parts. It is also excellent for casting waxes, gypsum and concrete. VGI1000 is a good electrical insulator where high mechanical stresses are involved. It is a superior product with the following advantages over other RTV silicones:

Extremely high tear strength: VGI1000 is especially good for molds with deep undercuts and for those molds that require flexing for part removal.
Low shrinkage: VGI1000 offers exceptional reproduction capability and is particularly valuable in the production of many-sided molds where exact registrations are required.
Excellent chemical resistance: VGI1000 exhibits extremely long mold life due to unique processing techniques that were developed to meet the rigors of polyester and polyurethane casting.
Excellent shelf life: VGI1000 retains its dimensional stability and resists embrittlement on aging.
Low Viscosity: The low viscosity of VGI1000 allows for easy mixing and de-airing to ensure a smooth, even flow.
Color-coded catalyst: The blue VGI1000 activator ensures homogenous mixing and eliminates mold loss resulting from inadequate stirring.
Long pot life: VGI1000 gives good overnight cure despite having a working time of two hours. It is relatively insensitive to temperature and humidity fluctuations.
Variable rate cure: Several activators are available for special or unusual applications.
Insensitive to inhibition: VGI1000 is not inhibited by most common mold-making substrates, eliminating the need to use mold sealers.
Good dielectric properties: VGI1000 provides excellent insulating characteristics over a wide temperature range and is especially suitable for applications where mechanical stresses are involved.
Low Cost: VGI1000 has a low specific gravity, which means less of it is required than rubber with a higher specific gravity. When the long mold life is combined with the low specific gravity, VGI1000 is a cost effective, high performance RTV silicone rubber.
Fast Activators are available please inquire

TYPICAL PROPERTIES

Uncatalyzed	Compound Base	Activator
Color	Off-white	Blue
Viscosity (cps)	50,000 – 70,000	350
Specific gravity	1.10	.99
Working time (minimum)	1.5 – 2.5 hours	
Cure time	16 – 18 hours	
Shelf life	6 months	

Cured Rubber (7 days @70 degrees F & 50% R.H.)

Hardness, Shore A	32
Tensile strength (ASTM D412)	525 + or – 25 psi
Elongation (ASTM D412)	300 + or – 25%
Tear, Die B (ASTM D624)	120 + or – 10 ppi
Shrinkage	0.1%
Specific gravity	1.10
Dielectric strength	500 volts/mil
Dielectric constant @ 100 Hz	3.3
Dissipation factor @ 100 Hz	0.1.9
Volume resistance	1 x 10.15 ohms/cm

PRODUCT	QUANTITY	PRICE (YEAR 2013)
RTV SILICONE RUBBER KITS includes base and activator		
VGI1000W1LB A&B RTV Silicone Rubber kit	1 LB	15.50
VGI1000W10LB A&B RTV Silicone Rubber kit	10 LB	138.00
VGI1000W50LB A&B RTV Silicone Rubber kit	50 LB	375.00

PRODUCT INFORMATION FOR TINT PIGMENTS

PIGMENT PRODUCT INFORMATION

We manufacturer high quality foam-tint pigments. They are formulated to mix great with any Polyurethane model cast resins. The color pigments are made to have excellent dispersion, consistent color, durable, long lasting, non-leaching, and easily mixable. We make eight colors Black, Blue, Brown, Green, Orange, Red, White, and Yellow. The colors can be mixed to achieve virtually any color, shade, and tone effects.

Usage

The pigment should be mixed into the 'B' side of the resin system prior to the final mixing of the 'A' side and the 'B' side. They should be stirred or mixed before use in case of settling to the bottom of the storage container. For coloring you would mix a maximum of 5% by weight into the 'B' side. To achieve a pastel color you would mix into any of our MODEL-CAST formulas that are white, off-white or tan (such as our 36XXX or 43321 formula). Different amounts of pigment will produce shades from light pastel to dark pastel. To achieve a true color you would typically mix 3% by weight in the 'B' side to any of our MODEL-CAST formulas that are clear (such as our 2011 formula). 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 of 5% by weight to achieve a variety of colors and shades.

PIGMENT COLORS	PART NUMBER	CONTAINER SIZE	PRICE(YEAR 2013)
Foam-tint Pigment, Black	VPBLACKV8OZ	1/2 PT (8 FL OZ)	10.25
Foam-tint Pigment, Blue	VPBLUEV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, Brown	VPBROWNV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, Green	VPGREENV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, Orange	VPORANGEV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, Red	VPREDV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, White	VPWHITEV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, Yellow	VPYELLOWV8OZ	1/2 PT (8 FL OZ)	12.25
Foam-tint Pigment, Black	VPBLACKV16OZ	1 PT (16 FL OZ)	18.50
Foam-tint Pigment, all other colors	VP*COLOR*V16OZ	1 PT (16 FL OZ)	21.00
Foam-tint Pigment, Black	VPBLACKV32OZ	1 QT (32 FL OZ)	31.00
Foam-tint Pigment, all other colors	VP*COLOR*V32OZ	1 QT (32 FL OZ)	36.00
Foam-tint Pigment, Black	VPBLACKV1G	1 GAL	62.00
Foam-tint Pigment, all other colors	VP*COLOR*V1G	1 GAL	82.00
Foam-tint Pigment, Black	VPBLACKV5G	5 GAL	260.00
Foam-tint Pigment, all other colors	VP*COLOR*V5G	5 GAL	360.00

VAGABOND MODEL-CAST GENERAL USE INSTRUCTIONS

1. All VAGABOND MODEL-CAST is formulated to be mixed one to one by volume, except 193FLEX which is mixed one to two by volume. The material will tolerate an off-ratio of five to ten percent without noticeable degradation of quality. The ratio instructions will be indicated on the product label.

2. VAGABOND 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 forty degrees F or lower the extenders could separate out and the material will be compromised. The separation is reversible by raising the temperature to eighty to ninety 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. VAGABOND MODEL-CAST components and all polyurethanes are very hygroscopic (They react to moisture in the air). Exposure to moisture can 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 as much as possible introduction of air and 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 VAGABOND 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 which are compatible with polyurethane resins. The price is listed on our MISCELLANEOUS PRODUCTS PRICE LIST.

4. VAGABOND MODEL-CAST materials are very easy to mix 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 mixer blade attached to a drill motor. Care should be exercised to mix the material thoroughly but not to excess, which can cause air bubbles.

5. VAGABOND 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 VAGABOND 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 VAGABOND 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 VAGABOND 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 VAGABOND MODEL-CAST.

PIGMENTS

We manufacturer foam-tint pigments. 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 by weight into any of our VAGABOND MODEL-CAST formulas that are white, off-white or tan, such as our 36XXX formula. 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 by weight into any of our VAGABOND MODEL-CAST formulas that are clear such as our 2011 formula. 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 GI1000 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 GI1000 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.

VAGABOND 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. 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.

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 VAGABOND MODEL-CAST into the mold. The Barrier Coat will chemically bond with the VAGABOND 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.

INERT GAS BLANKET TO PROTECT AND LENGTHEN SHELF LIFE

We carry Bloxygen. It uses a blend of Nitrogen, Carbon Dioxide and Argon gases to purge the air out of the VAGABOND 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

VAGABOND MODEL-CAST should be stored in the original containers in a dry and well ventilated area at room temperature of 70 Deg. F. The material can handle temperatures of 60 Deg. F. to 90 Deg. F. 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 VAGABOND MODEL-CAST. They are also provided in downloadable PDF format at our website www.glenmarc.com.

The information contained in this brochure is based on sources believed to be accurate to the best knowledge of Glenmarc Industries, Inc. It is offered in good faith, but without guarantee since conditions of use are beyond our control. Glenmarc Industries, Inc. assumes no legal responsibility. The user assumes all risks of use.

HOW TO MAKE A SILICONE MOLD

Measure components: Measure 10 parts by weight of VGI1000 base with 1 part by weight of VGI1000 activator in a container that will hold approximately four times the volume being used.
Mix thoroughly: Stir the mixture with a flat blade spatula or with a mechanical mixing device. Be sure to scrape the sides and bottom of the container to ensure the correct ratio of Base to Activator. Stir slowly until a uniform color is achieved without streaks.
De-aerate mixture: Place the mixed RTV silicone rubber into a de-aeration chamber capable of 28 to 29 inches of mercury vacuum. Allow the rubber to expand and collapse back to its original volume. Maintain vacuum for an additional one to two minutes. Release the vacuum and remove the container from the de-aeration chamber.
Pour over released pattern: The part to be duplicated should be coated with a mold-parting agent to ensure easy separation. The part should be placed into a box that will contain the silicone rubber while it is a liquid. Slowly pour the mixed silicone rubber over the released pattern being careful to avoid the formation of air bubbles or entrapped air. Allow the rubber to flow around the part to a minimum depth of 3/8 to 1/2 inch.
Cure: Allow the rubber to vulcanize for 16 to 18 hours at a room temperature of 70 degrees F. Lower temperatures and / or low humidity will cause the cure-time to be longer. Higher temperatures and / or high humidity will cause the cure-time to be shorter.
De-mold: Partially disassemble the mold box and remove the cured block of RTV silicone rubber. Carefully flex the mold to remove the original part.
Completed mold with pattern: The silicone mold is ready to be used with appropriate casting material to duplicate the original pattern.

EQUIPMENT AND HELPFUL INFORMATION

Scale: A scale is necessary to properly weigh the silicone rubber base and activator. Triple beam gram scales are most commonly used. Any accurate weighing device will work. Attempting to “eyeball” the base to activator on a volume base will usually fail.
Mixing containers: Containers must be clean and may be made of cardboard, metal, glass or plastic. To enable de-airing properly they must be approximately four times the mixed rubber volume to allow for expansion.
Mixing spatula: A flat blade of wood, metal or plastic can be used to thoroughly mix the base and activator. It must be capable of scraping the bottom and sides of the mixing container.
Mold frames and dams: Wood, cardboard or plastic strips and masking tape are all useful to construct frames and dams to contain the rubber in the desired shape around the pattern.
Paraffin wax: Melted wax applied quickly with a brush is an excellent medium to seal flat backed models to the mold box substrate or to seal narrow gaps in the mold dams. Heat wax with caution because it is flammable.
Brushes: A brush is used to apply RTV silicone when making “butter on” type molds and to apply melted paraffin wax, parting agent or mold sealer. Inexpensive brushes will work.
Plaster: Casting plaster is commonly used to construct rigid cases to support the flexible walls of RTV silicone molds. Tooling plaster is recommended because it maintains the best dimensional accuracy. Art casting plaster will suffice in less critical situations. Some type of fibrous reinforcement such as hemp or chopped fiberglass may be added to thicken and strengthen the plaster. This would apply in situations where the plaster is applied with a trowel as a mold backup rather than poured into a contained mold box.
Clay: Clay is frequently employed to partially embed the original model in order to establish parting lines for multiple-piece molds. It is practical for use in “voiding out” areas inside the mold box in order to conserve RTV mold material. It can also serve as an emergency plugging material if the silicone rubber unexpectedly leaks from the mold box. Some silicone mold-making rubbers are totally incompatible with the sulfur contained in most clay. Be sure to use only sulfur-free clay.
Electric mixing motor: Electric drill motor mixers can be effectively used especially with larger batches of rubber. The drill motor should be fitted with a jiffy type mixer or comparable impeller blade. The motor should be operated at under 1000 rpm.

Vacuum pump and vacuum chamber: De-aeration of the mixed rubber to remove entrapped air is always recommended. Removing air bubbles assures uniformly dense molds that will resist distortion and surface voids. The pump must be able to develop a minimum of 28 to 29 inches of mercury vacuum. The chamber or bell jar should accommodate a mixing container that will hold four times the volume of catalyzed rubber to be de-aired. If a vacuum pump is not available, suspend the container with the mixed material above the pour area, pierce a small hole in the bottom of the container and allow a small stream of RTV to fill the pattern box. Material dispensed in this manner will retain very little entrapped air.

Compressed air: When RTV silicones are used in the "butter on" methods of mold making it may be difficult to remove pinhead bubbles that become trapped on the pattern surface. After the first thin layer of RTV silicone has been brushed onto the surface an air gun may be used to break the bubbles. The air also forces the material to penetrate into the detail of the pattern and wet the pattern surface. Relatively low air pressure of 15 to 30 psi is required. This procedure should be the first step in pouring any mold when the pattern has a highly complex or porous surface such as a deeply carved wood grain.

Primer: RTV silicone rubber will not bond well to other surfaces. When adhesion is desired for a mold pattern to remain permanently attached to the mold box a primer can be brushed onto the surface and allowed to dry for one hour before pouring the silicone into the box.

Parting agent: RTV silicone will bond to itself unless separated by a parting agent. You must use a parting agent when casting RTV parts into a RTV mold. You must use a parting agent when casting multiple-piece molds where the mold sections touch each other. Complex or porous surfaces require a parting agent because the RTV will penetrate and physically lock onto the surface. Applying a parting agent will seal some of the pores to allow easy release without affecting the visual detail on the mold surface. You can use a prepared parting agent or a solution of five parts petroleum jelly dissolved in ninety-five parts of solvent at room temperature.

Silicone mold repair: Damaged molds can be repaired with a silicone adhesive agent. It is a one component air-drying rubber and is available as a tub and tile caulking in most hardware and building material stores. A small quantity of RTV can be also be mixed and applied to the mold to repair tears.

Reinforcement fabric: Molds that will have to withstand rough handling or repeated flexing can be reinforced with fabric such as open mesh nylon or dacron cloth. Woven fiberglass cloth can be used but it will not stretch. A coating of approximately 1/16 inch of rubber should coat the surface of the pattern before the fabric is applied or the fabric weave will appear on the surface of the mold.

Clean-up solvent: Xylene, mineral spirits, acetone, MEK, camp stove fuel, white gas and naphtha are suitable solvents that can be used to clean up uncured material. Treat each solvent with respect to its vapor and / or flammability hazard.

Mold degradation: Polyurethane, polyester and epoxy resins will shorten RTV silicone mold life through chemical and thermal attack on the mold surface. Most molds can produce approximately forty molds without any preventative measures. Mold life can be extended in several ways. Occasionally "baking out" the empty mold at a temperature of 160 to 200 degrees F for two hours is helpful. Using a release agent in the mold before pouring in the resin can double mold life. Release agents are suitable for smaller production runs when only about forty to one hundred parts are required from a mold. Release agents must be washed off of the finished part in order for paint and wood finishes to adhere to the surface. Barrier coats will allow production of three hundred or more parts. They cannot be washed off and will become the outer surface of the finished part and will accept paint and wood finishes.

Fillers in casting resins: There are a lot of different fillers that are suitable for use in the various types of casting resins. Fillers give a broad range of effects to the finished casting. They can increase or decrease the weight and enhance surface texture and color. Fillers can lower the cost of the formulation and increase the strength and toughness of the finished part. Calcium Carbonate is commonly used and the most inexpensive filler. It is used to produce synthetic marble effects. Talc is a low cost, soft filler and can be used when the finished part will be sanded. Glass and Expanded Silicate Microspheres will produce lightweight castings. Their low density can result in casting mixes that are very economical. Phenolic Micro-balloons will produce lightweight castings and is suitable for finished parts that will be sanded or machined with cutting tools. Aluminum Trihydrate is used to produce fire retardant castings. It can be used in polyester resin to produce a translucent onyx look.

Read and keep on file the Material Safety Data Sheets that are provided in every shipment of VGI1000. They are also provided in downloadable PDF format at our website www.glenmarc.com.

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DATA SHEET: VAGABOND MODELCAST 36XXX POLYURETHANE CASTING SYSTEM

Description:
This low odor, low viscosity formula flows easily into molds for excellent detail replication. It is our most popular formula for projects such as model car, model airplane, model railroad, science fiction and action figure kits. Cures to an off-white color (light beige) and will pigment to a pastel color or can be primed and/or painted. Can be casting by using standard RTV mold materials.

Uses: Model casting, casting mold patterns, prototypes, industrial part fabrication, and any type of castings needing a rigid material with great detail replication.

Mixing and Cure Instructions:

Ratio by volume: Side A Isocyanate 100 to Side B Polyol 100
Ratio by weight: Side A Isocyanate 115 to Side B Polyol 100

Pot life (100 gram mass at 72°F)

36XXX180 = 3 Minutes (Most popular stocked standard product)
36XXX120 = 2 Minutes (Use if you need to de-mold a little faster)
Demold time (at 72°F) = 10-30 minutes

Physical Properties (@ 72°F/ 22°C):

Color	Off white (Beige) other colors available (custom)
Shore “D” hardness ASTM D2240	70
Viscosity Side A Isocyanate	70 cps
Viscosity Side B Polyol	76 cps
Viscosity Mixed	73 cps
Density Liquid Side A Isocyanate	9.5 lbs/gal
Density Liquid Side B Polyol	8.6 lbs/gal
Density Cured material	65.6 lb/ft^3 (1.05 g/cm^3)
Tensile strength	6,200 psi
Compressive strength	7,600 psi
Shrinkage (in/in) linear 12”x1/2”x1/2”	0.005
Coefficient of Thermal Expansion	40 to 50 x 10-6/deg. C
Maximum Exotherm	200°F (93.3°C)
Deflection temperature	175°F (79.4°C)
Maximum use temperature	225°F (107°C)
Shelf Life	1 Year

Glenmarc Industries VAGABOND MODELCAST resins have been the industry standard for detailed castings for over 20 years.

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DATA SHEET: VAGABOND MODELCAST 43321 POLYURETHANE CASTING SYSTEM

Description:
This odorless, low viscosity formula flows easily into molds for excellent detail replication. It is our most popular formula for decorative items and when you prefer an odorless product. Also used for model car, model airplane, model railroad, science fiction and action figure kits. Cures to a bright white color and will pigment to a pastel color or can be primed and/or painted. Can be casting by using standard RTV mold materials.

Uses: For castings when a odorless material is needed. Decorative items, Model casting, casting mold patterns, prototypes, industrial part fabrication, and any type of castings needing a rigid material with great detail replication.

Mixing and Cure Instructions:

Ratio by volume: Side A Isocyanate 100 to Side B Polyol 100
Ratio by weight: Side A Isocyanate 115 to Side B Polyol 100
Pot life (100 gram mass at 72°F)
43321W180 = 3 Minutes (Most popular stocked standard product)
43321W120 = 2 Minutes
Demold time (at 72°F) = 10-30 minutes

Physical Properties (@ 72°F/ 22°C):

Color	Bright white other colors available (custom)
Shore “D” hardness ASTM D2240	70
Viscosity Side A Isocyanate	70 cps
Viscosity Side B Polyol	76 cps
Viscosity Mixed	73 cps
Density Liquid Side A Isocyanate	9.5 lbs/gal
Density Liquid Side B Polyol	8.6 lbs/gal
Density Cured material	65.6 lb/ft^3 (1.05 g/cm^3)
Tensile strength	5,800 psi
Compressive strength	6,700 psi
Shrinkage (in/in) linear 12”x1/2”x1/2”	0.005
Coefficient of Thermal Expansion	40 to 50 x 10-6/deg. C
Maximum Exotherm	200°F (93.3°C)
Deflection temperature	175°F (79.4°C)
Maximum use temperature	200°F (93.3°C)
Shelf Life	1 Year

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DATA SHEET: VAGABOND MODELCAST 2011 CLEAR POLYURETHANE CASTING SYSTEM

Description:
This low odor, low viscosity formula flows easily into molds for excellent detail replication. It is a popular formula for castings needing transparent "see-through" properties. Cures to a transparent straw color and can be pigmented to a solid color. Can be casting by using standard RTV mold materials.

Uses: Model casting, bases, parts, science fiction and action figure kits, and any type of castings needing a rigid material with great detail replication with transparent properties and/or see-through effects, also can be pigmented to a solid color.

Mixing and Cure Instructions:

Ratio by volume: Side A Isocyanate 100 to Side B Polyol 100
Ratio by weight: Side A Isocyanate 115 to Side B Polyol 100

Pot life (100 gram mass at 72°F)

2011C120 = 2 Minutes
Demold time (at 72°F) = 10-30 minutes

Physical Properties (@ 72°F/ 22°C):

Color	Transparent straw other sold colors available (custom)
Shore "D" hardness ASTM D2240	70
Viscosity Side A Isocyanate	70 cps
Viscosity Side B Polyol	76 cps
Viscosity Mixed	73 cps
Density Liquid Side A Isocyanate	9.5 lbs/gal
Density Liquid Side B Polyol	8.6 lbs/gal
Density Cured material	65.6 lb/ft^3 (1.05 g/cm^3)
Tensile strength	6,200 psi
Compressive strength	7,600 psi
Shrinkage (in/in) linear 12"x1/2"x1/2"	0.005
Coefficient of Thermal Expansion	40 to 50 x 10-6/deg. C
Maximum Exotherm	200°F (93.3°C)
Deflection temperature	175°F (79.4°C)
Maximum use temperature	225°F (107°C)
Shelf Life	1 Year

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DATA SHEET: VAGABOND MODELCAST 2C POLYURETHANE CASTING SYSTEM

Description: This low odor, low viscosity formula flows easily into molds for excellent detail replication. Cures to a hard strong formula. Convenient 1:1 by volume mix ratio and fast demolds, Can be casting by using standard RTV mold materials.

Uses: Casting parts, mold patterns masters, tooling, prototypes, industrial part fabrication and any type of castings needing a hard strong material.

Mixing and Cure Instructions:

Ratio by volume: Side A Isocyanate 100 to Side B Polyol 100
Ratio by weight: Side A Isocyanate 115 to Side B Polyol 100

Pot life (100 gram mass at 72°F)

2CTAN150 or 2CBLK150 = 2-1/2 Minutes
2CTAN210 or 2CBLK210 = 3-1/2 Minutes

Demold time (at 72°F) = 10-30 minutes

Physical Properties (@ 72°F/ 22°C):

Color	Tan and black available
Shore “D” hardness ASTM D2240	75
Viscosity Side A Isocyanate	76 cps
Viscosity Side B Polyol	78 cps
Viscosity Mixed	77 cps
Density Liquid Side A Isocyanate	9.5 lbs/gal
Density Liquid Side B Polyol	8.6 lbs/gal
Density Cured material	65.6 lb/ft^3 (1.05 g/cm^3)
Tensile strength	6,300 psi
Compressive strength	7,700 psi
Shrinkage (in/in) linear 12”x1/2”x1/2”	0.005
Coefficient of Thermal Expansion	40 to 50 x 10-6/deg. C
Maximum Exotherm	200°F (93.3°C)
Deflection temperature	175°F (79.4°C)
Maximum use temperature	225°F (107°C)
Shelf Life	1 Year

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DATA SHEET: VAGABOND MODELCAST 4032H POLYURETHANE CASTING SYSTEM

Description: This low odor, low viscosity formula flows easily into molds for excellent detail replication. It has higher impact strength, superior bonding characteristics and high chemical resistance. Cures to a high impact rigid material, convenient 1:1 by volume mix ratio and fast demolds, Can be casting by using standard RTV mold materials.

Uses: Casting mold patterns, prototypes, industrial part fabrication, housings, and any type of castings needing a rigid hard material. Also used for potting and encapsulating electronics.

Mixing and Cure Instructions:

Ratio by volume: Side A Isocyanate 100 to Side B Polyol 100
Ratio by weight: Side A Isocyanate 115 to Side B Polyol 100

Pot life (100 gram mass at 72°F)

4032HTAN150 or 4032HBLK150 = 2-1/2 Minutes
Demold time (at 72°F) = 10-30 minutes

Physical Properties (@ 72°F/ 22°C):

Color	Tan and black available
Shore “D” hardness ASTM D2240	75
Viscosity Side A Isocyanate	70 cps
Viscosity Side B Polyol	76 cps
Viscosity Mixed	73 cps
Density Liquid Side A Isocyanate	9.5 lbs/gal
Density Liquid Side B Polyol	8.6 lbs/gal
Density Cured material	65.6 lb/ft^3 (1.05 g/cm^3)
Tensile strength	6,400 psi
Compressive strength	7,800 psi
Shrinkage (in/in) linear 12”x1/2”x1/2”	0.005
Coefficient of Thermal Expansion	40 to 50 x 10-6/deg. C
Maximum Exotherm	200°F (93.3°C)
Deflection temperature	175°F (79.4°C)
Maximum use temperature	225°F (107°C)
Shelf Life	1 Year

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