Alja-Safe®

Crystalline Silica-Free Alginate

www.smooth-on.com

PRODUCT OVERVIEW

Safe to use **Alja-Safe®** is the world's first and only **crystalline silica free alginate** (a known carcinogen). Alja-Safe® is perfect for making single-use molds of the face, hands and other body parts. It captures detail better than other alginates, giving you a more accurate reproduction of your original.

Alja-Safe® is easy to use and cures quickly. It reproduces fine detail and makes an excellent temporary mold – good for one or two reproductions of any body part. You can then cast plaster, Matrix® NEO® (polymer modified gypsum) or Smooth-Cast® 300Q ultra-fast urethane resin into the mold to make a reproduction.

For making re-usable molds of any body part, use "Body Double" silicone rubber. Visit www.smooth-on.com for more information on lifecasting and what these materials can do for you.

TECHNICAL OVERVIEW

Mix Ratio: 1 Part Warm Water (80° F / 27° C)* to 1 Part Alja-Safe Powder By Volume (or 5 parts water to 1 part Alja-Safe by weight)	
Specific Volume, cu. in./lb.: 26	
Pot Life: 8 minutes	(ASTM D-2471)
Cure time: 10 minutes	
Color: Light Purple	

PROCESSING RECOMMENDATIONS

PREPARATION...

Preparation - Store and use Alja-Safe® in a dry environment at room temperature. Alja-Safe® powder may get warm in storage/shipping during the summer months which will cause the powder/water mixture to set too fast. To remedy, store Alja-Safe® in a cool area (60°C - 70°F or 15°C - 31°C) for 24 hours before using. Alja-Safe® has a limited shelf life and should be used as soon as possible. Do not allow moisture to come into contact with unused Alja-Safe®. Use only with adequate ventilation.

Practice: Make a mold of your thumb – make a mold of something small before going on to larger models. ***You'll gain a lot of experience with a small test.***

Applying A Release Agent – Alja-Safe® will not stick to most surfaces. When making a mold of the head, a release preparation is recommended to prevent mechanical lock to the hair. CHOLESTEROL Brand Hair Conditioner (available at most pharmacies) can be applied to hair-covered areas prior to applying Alja-Safe®. It can be washed out of the hair easily after use.

Because no two applications are quite the same, a small test application to determine suitability for your project is recommended if performance of this material is in question.

MEASURING, WATER QUALITY & WATER TEMPERATURE...

Measuring – Alja-Safe® is mixed 1 part water to 1 part powder by volume (1 cup + 1 cup, for example). You can vary the water level somewhat to change consistency of the mixture. Less water will make Alja-Safe® thicker. More water will make the mixture thinner and easier to pour. ***Be careful***…too much water will may result in the mixture not curing.

Water Quality – Water that has a high mineral content (calcium, phosphate, etc.) may cause any alginate to become "lumpy" or not set properly. A small-scale test is recommended prior to mixing large amounts.

Temperature Of The Water - At 80° F / 27° C, Alja-Safe® will have a working time of 8 minutes and a demold time of 10 minutes. Warmer water will cause the material to cure faster (less working time). Colder water will give a longer working time and slower demold time. **For best results, sift Alja-Safe® powder into water and mix as directed.**

Safety First!

CAUTION: Do not inhale dust. In case of eye contact, flush thoroughly with water. Children should not use this product without adult supervision.

The International Agency For Research on Cancer (IARC), which is part of the World Health Organization, has rated free crystalline silica a "Group 1" carcinogen, known to cause cancer. **Alja-Safe® alginate does not contain free crystalline silica.**

Read the Technical Bulletin and MSDS before using.

MIXING, POURING & VERTICAL APPLICATION...

Mixing – Alja-Safe® can be hand mixed, but best results will be obtained using a power drill with a mixer attachment. Attach a Jiffy Mixer or Turbine Mixer to a power drill and mix for one minute (depending on volume) to a gel-like consistency – smooth without any powder lumps. Jiffy mixers are available at many hardware stores. Turbine Mixers will yield the best mix and are available from Smooth-On or your Smooth-On distributor.

Alja-Safe® can be poured around an object or applied to vertical surfaces.

Pouring Around An Object - Once mixed, Alja-Safe® can be poured around the hand, foot, fingers or other model in a fixed position inside a container. Suspend the model just above the bottom of the container and have at least ½" (1.27 cm) space between the model and the side walls of the container.

For Best Results: Apply a thin coating of Alja-Safe® to the surface of the model by smoothing a small amount of material on by hand. Pour Alja-Safe® into the container at the lowest point and let the material rise around the model. Make sure your model has a good clearance distance from the bottom and sides of the container. Keep your model still until the Alja-Safe® sets up. You will know the Alja Safe has set when it is firm and no longer gel-like.

For Vertical Application – You may want to experiment with the amount of water added to Alja-Safe® to find a thicker consistency that is right for vertical surface application. For example, some customers mix 1 part water to 1.5 parts Alja-Safe®. Work Alja-Safe® into model detail with your hands and let cure.

Applying A Support Shell - Once the alginate cures, a support shell will be necessary to support the alginate mold. "Gypsona" bandages are ideal for this purpose, and are available from Smooth-On or your Smooth-On distributor.

CASTING INTO THE MOLD...

All alginate molds will deteriorate quickly. It is recommended that you cast into the mold within 4 hours following demold. Materials commonly cast into alginates include Matrix NEO (polymer modified gypsum, available from Smooth-On), plaster, wax, clay and very fast urethane resins (such as Smooth-Cast 300Q). **For Soft "Skin-Like" Castings** – You can cast Dragon Skin Q soft silicone rubber into Alja-Safe® molds to make realistic hands, limbs, etc.

HOW MUCH ALJA-SAFE® DO I NEED?

Anatomy	Alja-Safe®	Anatomy	Alja-Safe®
Baby's Hand / Foot	1/2 lb.	Full Torso – Front & Back	3 lbs.
Adult Hand / Foot	1 lb.	Arm to Shoulder	1.5 lbs.
Face – No Ears	1 lb.	Buttocks	1 lb.
Full Head & Shoulders	2.5 lbs.	Intimate Areas	0.5 lb.
Front Torso	1.5 lbs.	Full Body	15 lbs.

* This guide is offered as a reference tool only. It is an estimation and actual amounts needed will vary from individual to individual. End User assumes full responsibility for own calculations of material needed.

Call Us Anytime With Questions About Your Application.

Toll-free: **(800) 762-0744** Fax: **(610) 252-6200**

The new **www.smooth-on.com** is loaded with information about mold making, casting and more.

HYDROCAL® Plaster

White Gypsum Cement

PRODUCT OVERVIEW

HYDROCAL® White Gypsum Cement is an easy to use, high strength, bright white casting plaster that can be used for a variety of arts and crafts applications. *Do not apply this product to the skin.*

HYDROCAL® White Gypsum Cement when fully cured can be easily painted, sanded and machined.

TECHNICAL OVERVIEW

Mixing Ratio: 1 Part Warm Water (70º to 100º F / 21º to 38º C) To 2 Parts Gypsum Cement by Volume. (100 Parts Gypsum Cement To 45 Parts Water by weight)		
Working Time:* 8 minutes		***Demold Time:**** 3-4 hours (depending on mass)
***Note:** Working time and demold time can vary depending upon water temperature. Cooler water will give a longer working time and extend the demold time.		

Preparation

Gypsum powder is moisture sensitive and will absorb atmospheric moisture. Unused plaster should be stored in a dry environment in sealed containers. Materials should be stored and used in a warm environment (72° F / 23° C). This product has a limited shelf life and should be used as soon as possible. Mixing should be done in a well ventilated area. Wear eye protection, dust mask, latex or vinyl gloves and long sleeve garments to minimize skin contact.

Measuring Mixing Pouring Curing Temperature

Measuring . . . Gypsum is measured 1 Part Warm Water (70º to 100º F / 21º to 38º C) to 2 Parts Gypsum Cement by Volume (100 Parts Gypsum Cement To 45 Parts Water by weight). Working time and demold time can vary depending upon water temperature. Cooler water will give a longer working time and extend the demold time.

Soaking . . . For best results, add powder to water by sprinkling or sifting it slowly and evenly onto the surface of the water. Do not add water to powder, as this may prevent a thorough and uniform mix. Let soak for 2 minutes. Gypsum Cement should be fully dispersed in the water prior to mixing.

Mixing . . . Mix either by hand or with hand drill and mixing blade set on a slow speed. Mix for a minimum of 4 minutes to a creamy consistency. Mechanically mixed slurries produce a more uniform casting with optimal strength.

Pouring . . . To prevent air entrapment and provide a uniform smooth surface, carefully pour mixture into a single spot at the lowest point of the mold and let the mixture seek its level. The mold may have to be rotated several times during the pour to eliminate air bubble entrapment. When the mixture levels off at the top of the mold, vibrate or gently tap the mold to break any remaining air bubbles.

Curing . . . The gypsum cement will green cure in approximately 3 hours depending on size, temperature, water concentration and mold configuration. Thin, small areas will take longer to cure than larger, thick areas. If concerned about the strength of the casting for demolding, allow an addition 1 to 2 hours before removing from the mold.

Temperature . . . Materials should be stored and used in a warm environment (72° F / 23° C). Working time and demold time can vary depending upon the water, mold and room temperature. Cooler temperatures will give a longer working time and extend the demold time. Optimal water temperature is 70º to 100º F / 21º to 38º C, optimal room temperature is 72ºF / 21ºC. Do Not Use Hot Water (in excess of 100ºF / 38◦C).

If sanding or machining finished plaster, wear NIOSH approved respirator to avoid breathing plaster dust.

Safety First! **Safety First!** **Safety First!**

∆WARNING!
When mixed with water this material hardens and becomes **VERY HOT** – sometimes quickly.
DO NOT attempt to make a cast enclosing any part of the body using this material. Failure to follow these instructions can cause severe burns that may require surgical removal of affected tissue or amputation of limb.

KEEP OUT OF REACH OF CHILDREN

WARNING: INJURIOUS TO EYES. CAUSES SKIN IRRITATION. Contains Portland Cement. Avoid contact with eyes and skin. Do not take internally. Avoid breathing dust. Contact with wet cement can cause severe irritation or chemical burns to the eyes and skin. Wear safety glasses and gloves.
FIRST AID: For eye contact, flush with water for 15 minutes and get immediate medical attention. For skin contact, wash thoroughly with soap and water. If irritation persists, get medical attention. If ingested, do not induce vomiting. Drink 2 -3 glasses of water and get immediate medical attention.
Product Safety information: (800) 507-8899. **Keep Out Of Reach Of Children.**

California Prop. 65: WARNING: United States Gypsum Hydrocal® White Gypsum Cement contains a chemical known to the State of California to cause cancer.

The material safety data sheet (MSDS) for this product should be read before using and is included in this kit. All gypsum products are safe to use if directions are read and followed carefully.

NOTICE - We shall not be liable for incidental or consequential damages, directly or indirectly sustained, nor for any loss caused by application of this product not in accordance with current printed instructions or for other than the intended use. The information contained in this bulletin is considered accurate. However, no warranty is expressed or implied regarding the accuracy of the data, the results to be obtained from the use thereof, or than any such use will not infringe a copyright or patent. User shall determine suitability of the product for the intended application and assume all associated risks and liability.

HYDROCAL® Brand White Gypsum Cement is a product of United States Gypsum Company. For more information contact United States Gypsum Company, Industrial Gypsum Division, 125 South Franklin Street, Chicago, IL 60606-4678.
Telephone: 800-487-4431 or 312-606-5380.
Website: www.usg.com
Product Safety information: USA 800-507-8899.

Important: The information contained in this bulletin is considered accurate. However, no warranty is expressed or implied regarding the accuracy of the data, the results to be obtained from the use thereof, or that any such use will not infringe upon a patent. User shall determine the suitability of the product for the intended application and assume all risk and liability whatsoever in connection therewith.