

S-rimtm

solid reaction injection molding

fast cure. high performance.

Cast solid parts in seconds!



S-RIM 6260
-Scale Models-



S-RIM 6260
-Gun Scope Prototype-



S-RIM 6260
-Fan-

Introducing...

s-rim

solid reaction injection molding

- ★ 1:1 mix ratio by volume
- ★ De-mold in less than 5 minutes
- ★ Excellent physical properties
- ★ High heat distortion temperatures
- ★ Production grade materials
- ★ Low viscosity

The S-RIM Series

SOLID REACTION INJECTION MOLDING

	PHYSICAL PROPERTIES	TEST METHOD	S-RIM 6260 Black	S-RIM 6261 Tan	S-RIM 7240 Black	S-RIM 7241 Tan
PHYSICAL PROPERTIES	Mix Ratio by volume A:B by weight A:B	Calculation	100:100 100:86	100:100 100:85	100:100 100:93	100:100 100:93
	Gel time 100 grams @ 25°C	ASTM D-2971	60 sec.	60 sec.	4 min.	4 min.
	Color (cured)	Visual	Black	Tan	Black	Tan
	Hardness Shore	ASTM D-2240	80 D	80 D	84 D	84 D
	Viscosity mixed @ 25°C cps	ASTM D-4878	600	600	300 ± 50	300 ± 50
	Specific Gravity mixed @ 25°C	ASTM D-4669	1.12	1.12	1.10	1.10
	Shrinkage		.004-.008	.004-.008	.004-.008	.004-.008
	De-mold time @ 70°F @ 150°F	HAPCO TEST 1/8" thick	5 -12 min.	5 -12 min.	1 hr. 30 min.	1 hr. 30 min.
	Weight per cubic inch (lbs.)	Calculation	0.0405	0.0405	0.0395	0.0395
	PRODUCT PROPERTIES	Tensile Strength (psi)	ASTM D-638	7,700	8,700	6,200
Elongation %		ASTM D-638	14.7	16.7	11	11
Modulus of Elasticity psi (000)		ASTM D-638	95	95	340	340
Izod Impact (ft.lbs/in.) notched unnotched		ASTM D-256	0.18 1.04	0.21 1.16	.23 1.30	.23 1.30
Heat Distortion Temp. (HDT - °C)		ASTM D-648	108°C 117°C	108°C 117°C	112°C N/A	112°C N/A
Flexural Strength (psi)		ASTM D-790	10,600	11,500	8,700	8,700
Flexural Modulus psi (000)		ASTM D-790	264	275	161	161

NOTE: Post curing these materials is strongly recommended. Before use, reference material handling, processing, and safety notes located on pages 4-5.

SRIM SERIES

MATERIAL HANDLING & SAFETY NOTES

POSTCURE:

Postcure Heat: 100-175°F (38-79°C) for a *minimum* of 8-16 hours.

Cure time will decrease with heat acceleration. Izod impact and heat distortion properties increase with postcure heat. The lower the temperature the longer the post-cure (8-24 hrs).

DE-MOLD & CURE TIMES:

De-mold and final cure time can be accelerated with the addition of postcure heat 100-175°F (38-79°C) .

To retain working life, heat the mold not the material for best results. Increasing the mold temperature to 80-100°F (26-38°C) will accelerate de-mold and cure times by up to 50%. For full cure polymers require at least 7-10 days.

Final cure for faster gel materials (3-6 minute gel) is 3-7 days. Please be aware that size and mass effect de-mold and cure times. The customer and geometry will ultimately determine de-mold time.

HARDNESS NOTE:

The hardness progresses more slowly in the longer working life systems. The hardness progression can be accelerated by using the faster version or by curing with mild heat. Hardness and cure progress will be retarded, slowed down, when the temperature falls below 70°F.

SURFACE PREPARATION TO PREVENT ADHESION:

To prevent adhesion to the mold, use a GREASE-IT release agent. The following are recommended:

GREASE-IT II, GREASE-IT IV, GREASE-IT V, GREASE-IT WAX P, or GREASE-IT WAX LT, use GREASE-IT FDG when a Food & Drug grade release is required. For best results, apply in a few thin coats, drying between coats.

Porous surfaces, i.e. wood, plaster, etc, must be sealed thoroughly before release is applied. Use multiple coats of a good coating, such as: a high grade lacquer or urethane lacquer.

SURFACE PREPARATION FOR ADHESION:

For applications where adhesion is desired, the surface must be cleaned, abraded and dried. Sandblasting and mechanical roughing are the preferred ways of abrading surfaces to be bonded. For added adhesion to metals, use Primer 200 and for added adhesion to plastic, use Primer 810. Make sure all surfaces are clean, dry, and free from moisture.

COLD TEMPERATURES:

CAUTION - Part A may freeze or crystallize in cold temperatures. Part A may appear to be striated or solidify.

This situation can easily be corrected. Place the cover on the Part A loosely (do not seal) and place in an oven set at 150-175°F (65-79°C) for 3-4 hours, for drums heat for 6-12 hours. Reseal, allow to cool, and then mix thoroughly.

MIXING:

IMPORTANT: *Before each use, mix PART B thoroughly, in pigmented systems, before proportioning out the required amount.*

Components may separate and should be mixed before each use. Mix, only when ready to use, by adding the curing agent to the resin portion and blending together thoroughly. Be sure to scrape and stir in all material sticking to the sides and bottom of the mixing container. Do not use paper containers or wooden mixing sticks. They may contain moisture.

For best results, use plastic or coated containers, and metal or plastic sticks.

MACHINE MIXING AND DISPENSING:

Use Hapco's **RAPIDFIL**, **MINIFIL**, and/or **RAPIDSHOT** dispensing machines for fast, reliable, and efficient mixing without the air entrapment, measuring, or mess associated with hand processing.

SRIM SERIES
MATERIAL HANDLING & SAFETY NOTES (cont.)

CASTING:

Pour in a thin unbroken stream into the lowest point in the cavity or mold. This will help break up some of the air entrapped during mixing. Due to their fast gel times, Hapco recommends meter mix dispensing these products.

SHRINKAGE:

Shrinkage or dimensional variation is largely influenced by 5 factors:

1. Mass (total volume and thickness)
2. The temperature of the material
3. Maximum temperature reached during the exotherm (reaction).
The faster the gel time, the higher the exotherm, the greater the shrinkage.
4. The temperature of the mold
5. The thermal properties of the mold material.(Insulator vs. Conductive)

Geometry, part thickness, and total volume vary in each design, therefore, the customer is responsible to test and determine the shrinkage factor to be used. The values in the brochures are for comparative reference only, using ASTM testing procedures.

AIR RELEASE:

Use Hapco's ANTI-AIR to aid in air release when vacuum degassing (see Technical Bulletin). In some products, ANTI-AIR can cause a slight haze to cloudiness. This has no effect on properties.

CLEAN UP:

Cured polymers are difficult to remove. It is best to clean tools and equipment immediately after use. For best results use Hapco's A-TAK.

STORAGE:

Store both components in an area with a temperature range of 68-90°F (20-32°C). Store in a dry place off of cement floors and on shelving if possible. Containers should be kept tightly closed.

SHELF LIFE:

The shelf life on Hapco products begins from the date of invoice for that product shipment. Hapco's shelf life only pertains to containers that are unopened and in their original condition. Once the container is opened Hapco has no control or responsibility for the shelf life.

RESEALING:

Many polymers are moisture sensitive, reseal, using one of the following two (2) methods: blanket with nitrogen or use a hair dryer for 30 seconds to cover with dry air.

PRECAUTIONS:

Skin or eye contact with any glass filler should be avoided. The use of gloves, eye protection, and face masks are strongly recommended. All polymers, as a general practice, should be used in well-ventilated areas. Spot ventilation is most effective. Contaminated clothing should be removed immediately and the skin washed with soap and water or waterless skin cleaner. Should accidental eye contact occur, wash thoroughly with water and consult a physician.

The information presented here is based on carefully conducted laboratory tests and is believed to be accurate. However, results cannot be guaranteed and it is suggested that customers confirm results under their conditions and in their applications before production use.

Important: Hapco Inc. makes no warranty, whether expressed or implied, including warranties of merchantability or of fitness for a particular purpose. Under no circumstances shall Hapco Inc. be liable for incidental, consequential, or other damages from alleged negligence, breach of warranty, strict liability, tort contract, or any other legal theory, arising out of the use of handling of this product. The sole remedy of purchaser and sole liability of Hapco Inc. shall be for the purchase price of the product which is the subject of the claim.

4/1/2012