

# Steralloy™

by hapco



Food & Drug Grade  
Liquid Molding Compounds

# STERALLOY™

- FOOD & DRUG GRADE LIQUID MOLDING POLYMER ALLOYS -

**Steralloy™** is the first polymer series from Hapco that has been specifically designed for food and drug applications. All of the products in the **Steralloy™** line exhibit unique physical and chemical properties and have been used in numerous applications where biocompatibility is required.

**KEY ADVANTAGES:**

- Approvable materials
- Wide range of durometers (25A-85D)
- Very high physical properties
- ROHS compliant
- Low moisture sensitivity
- Easy to use

The food, drug, pharmaceutical, wine, beer, juice, dairy, hospital equipment, and prosthetic industries are just some examples of applications that utilize special products such as **Steralloy™** .

There are two **Steralloy™** Series:

**Steralloy™ Elastomeric Series (pg. 4-6)**

- ✦ various hardness elastomers, shore 20A - 72D
- ✦ clear in color
- ✦ available in 2 speeds - fast and slow

**Steralloy™ Rigid Series (pg. 7)**

- ✦ rigid, tough polymer alloy plastics
- ✦ high heat distortion
- ✦ high physical properties

**Steralloy™** products may be customized to fine tune project/specific properties.  
*(Please contact a Hapco Representative)*

## Here are just a few parts made using **Steralloy™** materials:

Applications such as biomedical, pharmaceutical, surgical, food processing, hospital equipment, and anatomic models can now be market places for the Liquid Molders.



### Food Processing

- roller, food masher -



### Surgical

- retraction claw, instrument grip, endoscope part -



### Test Models

- bone/ligament model, knee cartilage, artery model -



### Biomedical

- fluid container -



### Ultrafiltration Applications

pharmaceutical, blood, beer/wine filters and more!



### Clean Room Applications

- filters, instruments, hardware-

**NOTE:** Hapco's Steralloy™ formulations have been successfully used to manufacture products that have passed various levels of biocompatibility testing, however, the responsibility for testing cured parts to verify suitability for a particular application lies with the customer and/or end user. Hapco makes no warranty, expressed or implied, of fitness for a particular use.

# STERALLOY™ E-SERIES

## Elastomeric

- FOOD & DRUG GRADE LIQUID MOLDING COMPOUNDS -

	PROPERTIES	TEST METHOD	2021	2021-5	2036	2036-5	2056	2056-5
<b>PHYSICAL PROPERTIES</b>	Mix Ratio by volume A:B by weight A:B	Calculation	100:200 100:200	100:200 100:200	100:300 100:300	100:300 100:300	100:400 100:400	100:400 100:400
	Gel time 100 grams @ 25°C	ASTM D-2971	16 min. ± 2	5 min. ± 2	16 min. ± 2	5 min. ± 1	18 min. ± 2	5 min. ± 1
	Color (cured)	Visual	clear / translucent	clear / translucent	clear / translucent	clear / translucent	colorless / slightly cloudy	colorless / slightly cloudy
	Hardness Shore Scale	ASTM D-2240	25 A	25 A	35 A ± 5	35 A ± 5	55 A ± 5	55 A ± 5
	Viscosity mixed @ 25°C cps	ASTM D-4878	2,500	2,500	3,000	3,000	4,500	4,500
	Specific Gravity mixed @ 25°C	ASTM D-4669	1.15	1.15	1.16	1.16	1.16	1.16
	Shrinkage inch/inch See shrinkage paragraph	ASTM D-2566	.001-.003	.002-.004	.001-.003	.002-.004	.001-.003	.002-.004
	Demold time @ 70°F 1/8" thick	HAPCO TEST	6 - 8 hours	2 - 4 hours	6 - 8 hours	2 - 4 hours	4 - 6 hours	1 - 2 hours
	Weight per cubic inch (lbs.)	Calculation	0.0415	0.0415	0.0419	0.0419	0.0419	0.0419
<b>PRODUCT PROPERTIES</b>	Tensile Strength (psi)	ASTM D-638	300	300	450	450	650	650
	Elongation %	ASTM D-638	>1,200	>1,200	1,000	1,000	950	950
	Tear Strength (pli)	ASTM 624 Die C	65	65	85	85	120	120
	Modulus of Elasticity psi (000)	ASTM D-638	NA	NA	NA	NA	NA	NA
	Izod Impact (Ft.lbs/inch) notched unnotched	ASTM D-256	No Break	No Break	No Break	No Break	No Break	No Break
	Heat Distortion Temperature (°C) 66 psi 264 psi	ASTM D-648	NA	NA	NA	NA	NA	NA
	Flexural Strength (psi)	ASTM D-790	NA	NA	NA	NA	NA	NA
	Flexural Modulus psi (000)	ASTM D-790	NA	NA	NA	NA	NA	NA

**NOTE: Post curing these materials above 100°F is NOT recommended. Before use, reference material handling, processing, and safety notes located on pages 11-12.**

# STERALLOY™ E-SERIES

## Elastomeric

- FOOD & DRUG GRADE LIQUID MOLDING COMPOUNDS -

PROPERTIES		TEST METHOD	2766	2766-5	2781	2781-5	2791	2791-5	2871	2871-4
<b>PHYSICAL PROPERTIES</b>	Mix Ratio by volume A:B by weight A:B	Calculation	100:20 100:20	100:20 100:20	100:25 100:25	100:25 100:25	100:15 100:15	100:15 100:15	100:32 100:32	100:32 100:32
	Gel time 100 grams @ 25°C	ASTM D-2971	23 min.	5 min.	20 min.	5 min.	20 min.	5 min.	20 min.	4 min.
	Color (cured)	Visual	clear	clear	clear	clear	clear	clear	clear	clear
	Hardness Shore Scale	ASTM D-2240	65 A	65 A	80 A	80 A	90 A	90 A	72 D	72 D
	Viscosity mixed @ 25°C cps	ASTM D-4878	4,000	4,000	3,000	3,000	4,000	4,000	4,300	4,300
	Specific Gravity mixed @ 25°C	ASTM D-4669	1.04	1.04	1.01	1.01	1.03	1.03	1.03	1.03
	Shrinkage inch/inch See shrinkage paragraph	ASTM D-2566	.0005 - .002	.001 - .0025	.0005 - .002	.001 - .0025	.0005 - .002	.001 - .0025	.001 - .003	.002 - .004
	Demold time @ 70°F 1/8" thick	HAPCO TEST	6-12 hrs.	2-4 hrs.	5-8 hrs.	1-2 hrs.	5-8 hrs.	1-2 hrs.	1-3 hrs.	30-60 min.
	Weight per cubic inch (lbs.)	Calculation	0.0375	0.0375	0.0365	0.0365	0.0372	0.0372	0.0372	0.0372
<b>PRODUCT PROPERTIES</b>	Tensile Strength (psi)	ASTM D-638	800	800	2,150	2,150	3,530	3,530	3,700	3,700
	Elongation %	ASTM D-638	950	950	520	520	420	420	65	65
	Tear Strength (pli)	ASTM 624 Die C	170	170	260	260	350	350	620	620
	Modulus of Elasticity psi (000)	ASTM D-638	NA	NA	NA	NA	NA	NA	6	6
	Izod Impact (Ft.lbs/inch) notched unnotched	ASTM D-256	No Break	No Break	No Break	No Break	No Break	No Break	1.5 6.3	1.5 6.3
	Heat Distortion Temperature (°C) 66 psi 264 psi	ASTM D-648	NA	NA	NA	NA	NA	NA	50°C 44°C	50°C 44°C
	Flexural Strength (psi)	ASTM D-790	NA	NA	NA	NA	NA	NA	2,350	2,350
	Flexural Modulus psi (000)	ASTM D-790	NA	NA	NA	NA	NA	NA	13.9	13.9

**NOTE: Post curing these materials above 100°F is NOT recommended. Before use, reference material handling, processing, and safety notes located on pages 11-12.**

# STERALLOY™ E-SERIES

## Elastomeric

- FOOD & DRUG GRADE LIQUID MOLDING COMPOUNDS -

	PROPERTIES	TEST METHOD	2503	2505
<b>PHYSICAL PROPERTIES</b>	Mix Ratio by volume A:B by weight A:B	Calculation	100:20 100:24	100:17 100:14
	Gel time 100 grams @ 25°C	ASTM D-2971	28 min.	16 min.
	Color (cured)	Visual	transparent / hazy	transparent / hazy
	Hardness Shore Scale	ASTM D-2240	65 D	90 A
	Viscosity mixed @ 25°C cps	ASTM D-4878	40,000 ± 5,000	50,000 ± 7,000
	Specific Gravity mixed @ 25°C	ASTM D-4669	1.13	1.13
	Shrinkage inch/inch <small>See shrinkage paragraph</small>	ASTM D-2566	.0005-.002	.001-.003
	Demold time @ 70°F 1/8" thick	HAPCO TEST	2 - 4 hours	2 - 4 hours
	Weight per cubic inch (lbs.)	Calculation	.0408	.0408
<b>PRODUCT PROPERTIES</b>	Tensile Strength (psi)	ASTM D-638	2,000	1,500
	Elongation %	ASTM D-638	120	200
	Modulus of Elasticity psi (000)	ASTM D-638	14	3.1
	Izod Impact (Ft.lbs/inch) notched unnotched	ASTM D-256	No break	No break
	Heat Distortion Temperature (°C) 66 psi 264 psi	ASTM D-648	54°C 47°C	50°C NA
	Flexural Strength psi	ASTM D-790	3,100	NA
	Flexural Modulus psi (000)	ASTM D-790	63.7	NA

**NOTE: Post curing these materials is highly recommended. Before use, reference material handling, processing, and safety notes located on pages 11-12.**

# STERALLOY™ R-SERIES

Rigid

- FOOD & DRUG GRADE LIQUID MOLDING COMPOUNDS -

	PROPERTIES	TEST METHOD	2380	2398	2456	2463	2501
<b>PHYSICAL PROPERTIES</b>	Mix Ratio by volume A:B by weight A:B	Calculation	100:20 100:18	100:15 100:15	100:20 100:20	100:25 100:25	100:25 100:22
	Gel time 100 grams @ 25°C	ASTM D-2971	27 min.	25 min.	25 min.	20 min.	32 min.
	Color (cured)	Visual	clear / slight haze	clear / slight haze	clear / cloudy	clear / cloudy	clear / cloudy
	Hardness Shore Scale	ASTM D-2240	85 D	77 D	76 D	80 D ± 3	80 D ± 3
	Viscosity mixed @ 25°C cps	ASTM D-4878	7,500 ±500	8,500 ±1,500	9,000 ±1,500	6,700 ±1,000	30,000 ±5,000
	Specific Gravity mixed @ 25°C	ASTM D-4669	1.10	1.09	1.10	1.11	1.10
	Shrinkage inch/inch See shrinkage paragraph	ASTM D-2566	.0005-.002	.0005-.002	.0005-.002	.0005-.002	.0005-.002
	Demold time @ 70°F 1/8" thick (For faster demold times contact Hapco)	HAPCO TEST	6-12 hrs. or 2-4 hrs. @ 50°C	6-12 hrs. or 2-4 hrs. @ 50°C	6-12 hrs. or 2-4 hrs. @ 50°C	6-12 hrs. or 2-4 hrs. @ 50°C	6-12 hrs. or 2-4 hrs. @ 50°C
<b>PRODUCT PROPERTIES</b>	Weight per cubic inch (lbs.)	Calculation	0.0397	0.0394	0.0397	0.0402	0.0397
	Tensile Strength psi	ASTM D-638	8,000	4,000	3,500	7,500	4,900
	Elongation %	ASTM D-638	7	22.3	24.4	6	16
	Modulus of Elasticity psi (000)	ASTM D-638	400	145	144	370	26
	Izod Impact (Ft.lbs/inch) notched unnotched	ASTM D-256	0.23 1.60	0.22 1.40	0.30 1.80	0.20 0.95	0.38 2.10
	Heat Distortion Temperature (°C) 66 psi 264 psi	ASTM D-648	98°C 94°C	88°C 64°C	64°C 52°C	98°C 93°C	94°C 80°C
	Flexural Strength psi	ASTM D-790	10,500	4,850	4,300	10,300	7,100
	Flexural Modulus psi (000)	ASTM D-790	190	92	88	198	133

**NOTE: Post curing these materials is highly recommended. Before use, reference material handling, processing, and safety notes located on pages 11-12.**

# PD COLOR DISPERSION SERIES

## OPAQUE COLOR DISPERSIONS



**PD-6 M  
RED**

0.03 (3%) by weight  
in Ultralloy 206/207



**PD-15 M  
ORANGE**

0.03 (3%) by weight  
in Ultralloy 206/207



**PD-3 M  
YELLOW**

0.03 (3%) by weight  
in Ultralloy 206/207



**PD-25 M  
YELLOW**

0.03 (3%) by weight  
in Ultralloy 206/207



**PD-4 M  
GREEN**

0.03 (3%) by weight  
in Ultralloy 206/207



**PD-9 M  
BROWN**

0.03 (3%) by weight  
in Ultralloy 206/207



**PD-1 M  
DARK BLUE**

0.03 (3%) by weight  
in Ultralloy 206/207



**PD-26 M  
BLUE**

0.03 (3%) by weight  
in Ultralloy 206/207



**PD-8 M  
LIGHT GREY**

0.03 (3%) by weight  
in Ultralloy 206/207



**PD-11 M  
DARK GREY**

0.03 (3%) by weight  
in Ultralloy 206/207



**PD-2 M  
CARBON BLACK**

0.02 (2%) by weight  
in Ultralloy 206/207



**PD-512 M  
BLACK OXIDE**

0.02 (2%) by weight  
in Ultralloy 206/207



**PD-7 M  
WHITE**

0.05 (5%) by weight  
in Ultralloy 206/207

**PD - Mix Ratio:** Add 1 - 5% (0.01-0.05) by weight to Part B, mix well. In above results, ratios were added by weight to Ultralloy 206/207 Part B, then mixed and cured.

Color Dispersions are compatible with most Hapco Resin Systems except those listed under the MP Color Series. Read product list for MP Color Series. All of Hapco Color Dispersions are appropriate for standard and/or FDG materials.

Weigh the color additions accurately for batch to batch uniformity. The above colors may be blended to form additional colors.

### NOTES:

All above Ratios are % added by weight to **Ultralloy 206/207 Part B**, then mixed and cured.

**Packaging Available:** 1/2 pint cans, 1 quart cans, 1 gallon pails, and 5 gallon pails.



# TD COLOR DISPERSION SERIES

## \* TRANSLUCENT COLOR DISPERSIONS



**TD-22 M  
RED**  
0.005 (1/2%) by weight  
in Ultralloy 206/207



**TD-24 M  
YELLOW**  
0.005 (1/2%) by weight  
in Ultralloy 206/207



**TD 20 M  
VIOLET**  
0.005(1/2%) by weight  
in Ultralloy 206/207



**TD-21 M  
ORANGE**  
0.005 (1/2%) by weight  
in Ultralloy 206/207



**TD-23 M  
BLUE**  
0.005 (1/2%) by weight  
in Ultralloy 206/207



**TD-28 M  
BLACK**  
0.005 (1/2%) by weight  
in Ultralloy 206/207

**TD - Mix Ratio:** Add 1/10 - 2% (0.001-0.02) by weight to Part B, mix well. In above results, ratios were added by weight to Ultralloy 206/207 Part B, then mixed and cured. Less than 1/10% (0.001) by weight may be added to the Part B for very translucent colors, 1/2% (0.005) to 2% (0.02) may be added to Part B to form opaque colors.

Color Dispersions are compatible with most Hapco Resin Systems except those listed under MP Color Series. Read product list for MP Color Series. All of Hapco Color Dispersions are appropriate for standard and/or FDG Materials.

Weigh the color additions accurately for batch to batch uniformity. The above colors may be blended to form additional colors.

### **NOTES:**

All above Ratios are % added by weight to **Ultralloy 206/207 Part B**, then mixed and cured.

**Packaging Available:** 1/2 pint cans, 1 quart cans, 1 gallon pails, and 5 gallon pails.

\*Translucent color dispersions are not translucent in some Liquid Molding Systems. Consult your Hapco Representative for more details.

# MP COLOR DISPERSION SERIES

## TRANSLUCENT\* and OPAQUE COLOR DISPERSIONS for

- Hapflex 1021, 1036, 1036-5, 1056, 1056-5
- Steralloy 2021, 2021-5, 2036, 2036-5, 2056, 2056-5
- Di-Pak 4021, 4036, 4036-5, 4056, 4056-5



**TD-22 MP  
RED**  
0.005 (1/2%) by weight  
in Ultralloy 206/207



**TD-24 MP  
YELLOW**  
0.005 (1/2%) by weight  
in Ultralloy 206/207



**TD-23 MP  
BLUE**  
0.005 (1/2%) by weight  
in Ultralloy 206/207



**TD-21 MP  
ORANGE**  
0.005 (1/2%) by weight  
in Ultralloy 206/207



**PD-3 MP (Opaque)  
YELLOW**  
0.03 (3%) by weight  
in Ultralloy 206/207



**PD-7 MP (Opaque)  
WHITE**  
0.05 (5%) by weight  
in Ultralloy 206/207



**PD-2 MP (Opaque)  
BLACK**  
0.02 (2%) by weight  
in Ultralloy 206/207



**TD-28 MP  
BLACK**  
0.005 (1/2%) by weight  
in Ultralloy 206/207

**TD - Mix Ratio:** Add 0.005 - 0.05% by weight to Part B, mix well.

Less than 1/10% or less than 0.001 by weight can be added to the Part B for very translucent colors, 1/2% (0.005) - 2% (0.02) may be added to the Part B, by weight, for opaque coloring.

**PD - Mix Ratio:** Add 1—5% (0.01-0.05) by weight to Part B, mix well.

Weigh the color additions accurately for batch to batch uniformity. The above colors may be blended to form additional colors.

### NOTES:

All above Ratios are % added by weight to **Ultralloy 206/207 Part B**, then mixed and cured.

**Packaging Available:** 1/2 pint cans, 1 quart cans, 1 gallon pails, and 5 gallon pails.

\*Translucent color dispersions are not translucent in some Liquid Molding Systems. Consult your Hapco Representative for more details.

## MATERIAL HANDLING & SAFETY NOTES

### POSTCURE:

Postcure Heat: 100-176°F (38-80°C) for 8-24 hours. Properties increase 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). It is suggested to post cure E-Series @ 100-140°F and R-Series @ 140-176°F .

### DEMOLD & CURE TIMES:

Demold 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 demold 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 demold and cure times. Many Steralloy materials are used at 85-90°F to lower viscosity, but gel time is reduced. The customer and geometry will ultimately determine demold 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.

### SILICONE MOLDS:

Silicone molds should be post cured overnight, 16-24 hours, in an oven at 120°F (48°C). When using a tin based silicone mold, make sure the mold is open when it is in the oven during postcure. Improperly cured silicone can cause a sticky surface on E-Series Steralloy parts. This process extends mold life.

**STERALLOY 2700/2800 Series products may have a negative reaction to silicone rubber molds.**

### USE FOR FDG APPLICATIONS

Hapco's Steralloy formulations have been successfully used to manufacture products that have passed various levels of biocompatibility testing, however, in all cases the responsibility for testing samples or parts to verify suitability for a particular application lies with the customer and/or end user.

### SURFACE PREPARATION TO PREVENT ADHESION:

To prevent adhesion to the mold, use a GREASE-IT release agent. The following are recommended: GREASE-IT II or 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 - The STERALLOY E-2000 ELASTOMERIC SERIES**

Part A may freeze or crystallize in cold temperatures. Part A may appear to be striated, thicken, or solidify. This situation can easily be corrected. Place the cover loosely on the Part A (do not seal). Place in an oven set at 125-150°F (51-65°C) , for 3-8 hours or 8-12 hours for drums. Reseal, allow to cool and then mix thoroughly before using.

#### **CAUTION - STERALLOY 2501, 2503 and 2505**

Part A may freeze or crystallize in cold temperatures. Part A may appear to be striated, thicken, or solidify. This situation can easily be corrected. Place the cover loosely on the Part A (do not seal). Place in an oven set at 100°F (38°C) , for 3-8 hours or 8-12 hours for drums. Reseal, allow to cool and mix thoroughly before using.

#### **CAUTION - The STERALLOY RIGID SERIES**

Part A may freeze or crystallize in cold temperatures. Part A may appear to be striated, thicken, or solidify. This situation can easily be corrected. Place the cover loosely on the Part A (do not seal). Place in an oven set at 100°F (38°C) , for 3-8 hours or 8-12 hours for drums. Reseal, allow to cool and then mix thoroughly before using.

## MATERIAL HANDLING & SAFETY NOTES (Cont.)

### MIXING:

**IMPORTANT:** Before each use, mix Part B thoroughly 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.

### 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. For best results, Hapco recommends meter mix dispensing, vacuum degassing and/or pressure casting at 70-80 PSI.

### 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 (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:

Polymer systems have a minimum shelf life of six months when unopened. 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:

**CAUTION:** The MSDS should be read thoroughly before using this product.

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.