



# OMEGA SET 300 Series

## Unique, high performance, two-part adhesive for the assembly of cores and molds

### Performance

OMEGA SET represents a true chemically curing foundry adhesive. It exhibits rapid chemical curing which requires no heat or extended drying times to build strength. High tensile strength and heat resistance of the cured adhesive prevent slipping or shifting of the core or mold during oven treatment and metal pouring. OMEGA SET adhesives can be applied as spots or beads according to job requirements.

Virtually all types of cores and molds can be assembled with the OMEGA SET adhesives regardless of the binder system used. Although the tensile development of OMEGA SET provides superior adhesion, IT IS NOT A SUBSTITUTE FOR MOLD CLAMPS AND WEIGHTS. Typical cores that can be assembled with OMEGA SET adhesives include; impeller core assemblies, cylinder block barrel cores, oil pump assemblies, water jacket and intake manifold cores.

### Advantages of OMEGA SET

Naturally, the benefits that can be gained by using the OMEGA SET adhesives will vary from foundry to foundry. The following summary illustrates some of these advantages:

- Adjustable work times for varying production conditions
- A convenient 1:1 ratio of components
- Low viscosity promotes bonding strength for increased mold or core surface adhesion
- Rapid set times improve productivity
- 100% reactive - no solvents - no VOC's
- Moisture and chemical resistant when fully cured
- Cures at ambient temperatures - no heat required
- Dispensing can be automated
- No re-softening during post-assembly oven drying- Not thermoplastic
- Cured adhesive is not brittle
- Reclaimable thermally or mechanically
- Cartridge systems available for trials or small production



# OMEGA SET 300 Series

## The OMEGA Set consists of two parts

### OMEGA SET PART I

A viscous, 100% solids, pre-polymerized resin containing a specific percentage of unreacted diisocyanate.

Product  
OMEGA SET 300

### OMEGA SET PART II

A viscous, 100% solids, polymeric dark-green resin. Several pre-catalyzed versions are available to yield various predetermined curing speeds.

Product	Description
OMEGA SET 303 HB	2 - 4 min Gel (Open) Time @ 73°F (23°C) 15 min Handling Time @ 73°F (23°C)
OMEGA SET 309 HB	9 - 11 min Gel (Open) Time @ 73°F (23°C) 30 min Handling Time @ 73°F (23°C)
OMEGA SET 315 HB	14 - 16 min Gel (Open) Time @ 73°F (23°C) 35 min Handling Time @ 73°F (23°C)
OMEGA SET 335 HB	32 - 38 min Gel (Open) Time @ 73°F (23°C) 1.5 hr Handling Time @ 73°F (23°C)
OMEGA SET 303 CHB	300 x 300 ml Cartridge w/OMEGA SET 300
OMEGA SET 309 CHB	300 x 300 ml Cartridge w/OMEGA SET 300
OMEGA SET 315 CHB	300 x 300 ml Cartridge w/OMEGA SET 300

Open Time – The time the adhesive is wet enough to bond to a second substrate being mated in the bed of adhesive. The open time is temperature dependent. All data given were measured at 73°F (23°C). Increasing the ambient temperature by 10°C, will result in a reaction twice as fast (open time is cut in half). Decreasing the ambient temperature by 10°C, will result in a reaction twice as slow (open time is doubled). Bonding is not recommended below 60°F (16°C).

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# OMEGA SET 300 Series

Handling Time – The time when the adhesive is hard enough to hold on it's own. The handling strength of freshly bonded parts depends on type and height of outside forces, that impact the bond. Typically, 100 PSI (0.7 MPa) is needed. In all cases peel forces that effect the bond need to be reduced as far as possible.

## Mixing OMEGA SET ADHESIVES

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OMEGA SET Parts I and II are fed to metering pumps and through separate lines to a static mixing head. Just prior to discharge, the components are thoroughly blend-ed. When intermittent dispensing of the mixed OMEGA SET adhesives are necessary, and if the idle periods exceed the half life of the mixer, a purge is necessary to clear the mix tube and prevent plugging. For example, if a 3 minute open time product is being used, the static mixer should be changed if left idol for 1.5 minutes or more. Should plugging occur, the inexpensive static mixing elements will need to be replaced.

The meter mix dispense is extremely versatile and can apply OMEGA SET adhesives as a continuous bead or reproducibly sized spots. Adhesive dispensing, can be accomplished automatically through preset cycles. Various manufacturers of dispensing equipment can help you select the correct equipment for your needs.

For optimum performance, selection of the proper pre-catalyzed Part II should be based on the amount of time required to dispense the necessary amount of OME-GA SET adhesive for the application selected.

A properly selected pre-catalyzed Part II will allow enough time to apply the adhesive and assemble the component parts before curing begins. Likewise, a properly selected Part II will begin to cure soon after assembly is accomplished. This will result in maximum productivity.

Cure time is dependent on the temperature of the core/mold, as it is for all chemically curing resins. Low core or mold temperatures will lengthen the curing time, whereas higher temperatures will shorten it. Consistent sand temperature is the key to trouble-free operation and optimum productivity.

## With Multi-Compartment Dispensing Tubes

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OMEGA SET adhesives are also available in pre-filled, hermetically-sealed dispensing tubes. These dispensing tubes only hold a small volume of adhesive, but are excellent for trial purposes or small volume applications.

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# OMEGA SET 300 Series

The tubes hold a specific amount of OMEGA SET Part I and OMEGA SET Part II in separated side-by-side cylinders and the parts are kept separate until they come in contact in the static mixing elements. These dispensing tubes are used with a special applicator available from certain equipment manufacturers. In order to open a cartridge, turn the cartridge over (upside down) and strike the top on a hard surface to avoid flashing. When opening a new cartridge, always dispense a small amount of material prior to installing the static mixer. This assures that the material is flowing, and it also levels the pistons avoiding off ratio dispense. Throttling the gun helps to determine if there is any kind of clog before piston failure occurs.

163336

Pneumatic Gun

## Product Storage Conditions

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- 2 years minimum in the original sealed container.
- Recommended store temperatures are 60 to 80°F for all components. Keep all containers closed when not in use. In order to preserve adhesive in a partial cartridge, leave the static mixer on the cartridge allowing the cured adhesive to form a seal. The remainder of the material will have the same shelf life as the unopened cartridge if stored in a cool, dry place. A new static mixer is needed for the next dispense.
- It is very important that moisture does not come in contact with either part.
- As with all adhesives, a first-in, first-out stock rotation is recommended.

## Clean-up

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Recommended solvents for cleaning up the OMEGA SET components in the un-cured state include Acetone and MEK. DBE or MIBK for clean-up of seals and pumps.

## Packaging

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- 5 gallons
- 55 gallons
- 300 x 300 ml cartridges



# OMEGA SET 300 Series

## Handling

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OMEGA SET components contain ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn. For important health, safety and handling information, consult ASK Chemical's material safety data sheet before using these products.

## Typical Features ( 1)

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### OMEGA SET 300 Pre-polymer

Color*:	Tan
Viscosity:	15,000 cps
Density:	10.8 lbs/gal
Specific Gravity:	1.3
Ratio by Weight:	1.07
Ratio by Volume:	1
Shelf Life:	24 Months

### OMEGA SET 30X Curative

Color*:	Dark Green
Viscosity:	20,000 cps
Density:	10.05 lbs/gal
Specific Gravity:	1.2
Ratio by Weight:	1
Ratio by Volume:	1
Shelf Life:	24 Months



# OMEGA SET 300 Series

## Typical Features <sup>(1)</sup>

Tensile, MPa @ 23C:	25.5 (3,698.4 psi)
Elongation:	70%
Young's Modulus, MPa:	517 (74,984.5 psi)
Density:	1.28 g/cc
Water Absorption:	<1.5%
Shrinkage:	Imperceptible

\* Slight differences in color are caused by minor variations of the natural raw materials or changes in color during tempering of the refractory solids, and have no influence on the product quality.

(1) Typical property values only, not to be construed as specifications. Actual properties will be dependent on the history of the material.