



Avisa Parseh Resin Manufacturing Co.



کیلومتر ۲۵ محور شیراز - اصفهان
شهرک صنعتی آب باریک ، انتهای خیابان شقایق



۰ ۷ ۱ - ۳ ۲ ۶ ۰ ۲ ۱ ۶ ۵ - ۸



۰ ۷ ۱ - ۳ ۲ ۶ ۰ ۲ ۶ ۵ ۵



Shaghayegh st., Ab Barik Industrial Zone,
25 Kilometers Of shiraz Esfahan Road , Shiraz - Iran



+98 71 32 60 21 65-68



+98 71 32 60 26 55



WWW.Avisaparseh.ir



Info@Avisaparseh.ir





AP111: Unsaturated Orthophthalic Polyester Resin

Unsaturated Polyester Resin AP111 AP111 is an orthophthalic polyester resin. Orthophthalic polyester resin is the standard economic resin with High resistance and rigid and the most widely used resin system, particularly in the stone cutting and Construction industries. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2 gardner
Density, 25°C/77°F	1.06 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	400-600 cP
Styrene Content	35-40 %
Acid Value	Max 40 mg KOH/g
Shelf Life, Dark, 25°C/77°F	6 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- They are specifically formulated for FRP application, figurine casting, stone craft, cultured marble and others
- Stone cutting industries
- Manufacture of durable parts
- Marine industries.

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoat-1%

Resin Temperature	25°C/77°F
Catalyst	1 (phr) ⁽²⁾
Cobalt octoate 1%	1 (phr)
Gel Time (min.)	5-20 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Reactivity test at 25°C/300cP

25°C - 35°C (a)	5-25
25°C- Exothermic Peak (b)	< 45
b/a	< 2.5
Exothermic Peak °C	150 - 170





AP111: Unsaturated Orthophthalic Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 65.0	ASTM D 638
Tensile Elongation (%)	Min. 3.0	ASTM D 638
Tensile Modulus (GPa)	Min. 2.8	ASTM D 638
Flexural Strength (MPa)	Min. 100.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.0	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 65.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 35.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP112: Unsaturated Orthophthalic Polyester Resin

Unsaturated Polyester Resin AP112 AP112 is an orthophthalic polyester resin. Orthophthalic polyester resin is the standard economic resin with low shrinkage and the most widely used resin system, particularly in the sculpture industry. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2 gardner
Density, 25°C/77°F	1.06 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	300-600 cP
Styrene Content	35-43 %
Acid Value	Max 40 mg KOH/g
Shelf Life, Dark, 25°C/77°F	6 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- . They are specifically formulated for FRP application, figurine casting, stone craft and others
- . Sculpture industries

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoat-1%

Resin Temperature	25°C/77°F
Catalyst	1 (phr) ⁽²⁾
Cobalt octoate1%	1 (phr)
Gel Time (min.)	5-25 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Reactivity test at 25°C/300cP

25°C - 35°C (a)	7-30
25°C- Exothermic Peak (b)	< 50
b/a	< 2.5
Exothermic Peak °C	150 - 175



AP112: Unsaturated Orthophthalic Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 70.0	ASTM D 638
Tensile Elongation (%)	Min. 2.8	ASTM D 638
Tensile Modulus (GPa)	Min. 3.0	ASTM D 638
Flexural Strength (MPa)	Min. 110.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.0	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 70.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 38.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP113: Unsaturated Orthophthalic Polyester Resin

Unsaturated Polyester Resin AP113 is an orthophthalic polyester resin. Orthophthalic polyester resin is the standard economic resin and the most widely used resin system, particularly in the sculpture industry. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2.5 gardner
Density, 25°C/77°F	1.06 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	300-600 cP
Styrene Content	35-43 %
Acid Value	Max 40 mg KOH/g
Shelf Life, Dark, 25°C/77°F	6 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

. They are specifically formulated for FRP application, figurine casting, stone craft and others
 . Sculpture industries

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoat-1%

Resin Temperature	25°C/77°F
Catalyst	1 (phr) ⁽²⁾
Cobalt octoate1%	1 (phr)
Gel Time (min.)	5-25 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Reactivity test at 25°C/300cP

25°C - 35°C (a)	7-30
25°C- Exothermic Peak (b)	< 50
b/a	< 2
Exothermic Peak °C	150 - 170



AP113: Unsaturated Orthophthalic Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 70.0	ASTM D 638
Tensile Elongation (%)	Min. 3.8	ASTM D 638
Tensile Modulus (GPa)	Min. 3.0	ASTM D 638
Flexural Strength (MPa)	Min. 110.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.0	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 65.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 35.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP114: Unsaturated Terephthalic Polyester Resin

Unsaturated Polyester Resin AP114 is an unsaturated polyester resin based on terephthalic acid. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2 gardner
Density, 25°C/77°F	1.08 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	300-600 cP
Styrene Content	30– 40 %
Acid Value	Max. 20 mg KOH/g
Shelf Life, Dark, 25°C/77°F	4 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- Recommended for most commercial FRP fabrication processes such as: hand lay- up, spray-up, pultrusion, stone craft , SMC & BMC
- Mastic manufacturing industries

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoat-1%

Resin Temperature	25°C/77°F
Catalyst (phr) ⁽²⁾	1
1% Cobalt octoate (phr)	1
Gel Time (min.)	5-20 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Resin Viscosity (cP)	300 ± 25
b/a	< 1.8
25°C- Exothermic Peak (b)	< 40
25°C- 35°C (a)	7-25
Exothermic Peak °C	150 - 165





AP114: Unsaturated Terephthalic Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 70.0	ASTM D 638
Tensile Elongation (%)	Min. 3.5	ASTM D 638
Tensile Modulus (GPa)	Min. 3.0	ASTM D 638
Flexural Strength (MPa)	Min. 120.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.0	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 65.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 38.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP115: Unsaturated Polyester Resin

Unsaturated Polyester Resin AP115 is an unsaturated polyester resin based on terephthalic acid. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2.5 gardner
Density, 25°C/77°F	1.08 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	300-600 cP
Styrene Content	33– 40 %
Acid Value	Max. 20 mg KOH/g
Shelf Life, Dark, 25°C/77°F	4 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- Recommended for most commercial FRP fabrication processes such as: hand lay-up, spray-up, pultrusion, stone craft , SMC & BMC
- Mastic manufacturing industries

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoate-1%

Resin Temperature	25°C/77°F
Catalyst (phr) ⁽²⁾	1
1% Cobalt octoate (phr)	1
Gel Time (min.)	5-20 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Resin Viscosity (cP)	300 ± 25
b/a	< 1.8
25°C- Exothermic Peak (b)	< 45
25°C- 35°C (a)	7-25
Exothermic Peak °C	150 - 170





AP115: Unsaturated Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 70.0	ASTM D 638
Tensile Elongation (%)	Min. 3.8	ASTM D 638
Tensile Modulus (GPa)	Min. 3.0	ASTM D 638
Flexural Strength (MPa)	Min. 110.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.0	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 65.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 40.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP116: Unsaturated Orthophthalic Polyester Resin

Unsaturated Polyester Resin AP116 is an orthophthalic polyester resin. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2.5 gardner
Density, 25°C/77°F	1.06 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	400-750 cP
Styrene Content	30-40 %
Acid Value	Max 40 mg KOH/g
Shelf Life, Dark, 25°C/77°F	4 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- Recommended for commercial FRP fabrication processes such as: hand lay-up
- Wood glue and wood industries

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoat-1%

Resin Temperature	25°C/77°F
Catalyst	1 (phr) ⁽²⁾
Cobalt octoate1%	1 (phr)
Gel Time (min.)	5-25 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Reactivity test at 25°C/300cP

25°C - 35°C (a)	7-30
25°C- Exothermic Peak (b)	< 50
b/a	< 2.5
Exothermic Peak °C	150-170





AP116: Unsaturated Orthophthalic Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 65.0	ASTM D 638
Tensile Elongation (%)	Min. 3.0	ASTM D 638
Tensile Modulus (GPa)	Min. 2.8	ASTM D 638
Flexural Strength (MPa)	Min. 100.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.0	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 65.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 35.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP117: Unsaturated Orthophthalic Polyester Resin

Unsaturated Polyester Resin AP117 — AP117 is an orthophthalic polyester resin. Orthophthalic polyester resin is the standard economic resin and the most widely used resin system, particularly in the marine industries. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2 gardner
Density, 25°C/77°F	1.06 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	400-800 cP
Styrene Content	30-40 %
Acid Value	Max 40 mg KOH/g
Shelf Life, Dark, 25°C/77°F	5 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- Recommended for most commercial FRP fabrication processes such as: hand lay-up and spray-up
- Marine industries

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoat-1%

Resin Temperature	25°C/77°F
Catalyst	1 (phr) ⁽²⁾
Cobalt octoate1%	1 (phr)
Gel Time (min.)	10-20 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Reactivity test at 25°C/300cP

25°C - 35°C (a)	12-25
25°C- Exothermic Peak (b)	< 40
b/a	< 2
Exothermic Peak °C	150 - 170



AP117: Unsaturated Orthophthalic Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 68.0	ASTM D 638
Tensile Elongation (%)	Min. 3.0	ASTM D 638
Tensile Modulus (GPa)	Min. 3.0	ASTM D 638
Flexural Strength (MPa)	Min. 120.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.5	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 65	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 38	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP118: Unsaturated Orthophthalic Polyester Resin

Unsaturated Polyester Resin AP118 is an orthophthalic polyester resin. Orthophthalic polyester resin is the standard economic resin and the most widely used resin system, particularly in the marine industries. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2 gardner
Density, 25°C/77°F	1.06 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	400-800 cP
Styrene Content	30-40 %
Acid Value	Max 40 mg KOH/g
Shelf Life, Dark, 25°C/77°F	6 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- Recommended for most commercial FRP fabrication processes such as: hand lay-up and spray-up
- Marine industries

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoat-1%

Resin Temperature	25°C/77°F
Catalyst	1 (phr) ⁽²⁾
Cobalt octoate1%	1 (phr)
Gel Time (min.)	10-30 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Reactivity test at 25°C/300cP

25°C - 35°C (a)	12-35
25°C- Exothermic Peak (b)	< 50
b/a	< 3
Exothermic Peak °C	150 - 170



AP118: Unsaturated Orthophthalic Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 70.0	ASTM D 638
Tensile Elongation (%)	Min. 3.5	ASTM D 638
Tensile Modulus (GPa)	Min. 2.8	ASTM D 638
Flexural Strength (MPa)	Min. 130.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.8	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 68	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 40	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP119: Unsaturated Polyester Resin

Unsaturated Polyester Resin AP119 AP119 is an unsaturated polyester resin based on terephthalic acid. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2 gardner
Density, 25°C/77°F	1.06 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	300-600 cP
Styrene Content	32-37 %
Acid Value	Max 20 mg KOH/g
Shelf Life, Dark, 25°C/77°F	6 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- Recommended for commercial FRP fabrication processes such as: hand lay-up
- Wood industries

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoat-1%

Resin Temperature	25°C/77°F
Catalyst	1 (phr) ⁽²⁾
Cobalt octoate1%	1 (phr)
Gel Time (min.)	5-25 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Reactivity test at 25°C/300cP

25°C - 35°C (a)	7-30
25°C- Exothermic Peak (b)	< 50
b/a	< 2
Exothermic Peak °C	150-160





AP119: Unsaturated Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 50.0	ASTM D 638
Tensile Elongation (%)	Min. 3.8	ASTM D 638
Tensile Modulus (GPa)	Min. 2.0	ASTM D 638
Flexural Strength (MPa)	Min. 70.0	ASTM D 790
Flexural Modulus (GPa)	Min. 1.5	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 40.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 30.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP5001: Unsaturated Orthophthalic Polyester Resin

Unsaturated Polyester Resin AP5001 is an orthophthalic acid based resin resistance to a wide range of acids and organic compounds. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2.5 gardner
Density, 25°C/77°F	1.06 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	300-500 cP
Styrene Content	35-40 %
Acid Value	Max 20 mg KOH/g
Shelf Life, Dark, 25°C/77°F	6 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- . Recommended for most commercial FRP fabrication processes such as: hand layup, spray-up, pultrusion, filament winding and resin transfer molding, SMC & BMC
- . For manufacturing pipes and tanks

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoate-1%

Resin Temperature	25°C/77°F
Catalyst	1 (phr) ⁽²⁾
Cobalt octoate 1%	1 (phr)
Gel Time (min.)	10-20 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Reactivity test at 25°C/300cP

25°C - 35°C (a)	12-25
25°C- Exothermic Peak (b)	< 40
b/a	< 1.8
Exothermic Peak °C	150 - 180



AP5001: Unsaturated Orthophthalic Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 70.0	ASTM D 638
Tensile Elongation (%)	Min. 3.0	ASTM D 638
Tensile Modulus (GPa)	Min. 3.0	ASTM D 638
Flexural Strength (MPa)	Min. 110.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.5	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 75.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 40.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP5002: Unsaturated Orthophthalic Polyester Resin

Unsaturated Polyester Resin AP5002 is an orthophthalic acid based resin resistance to a wide range of acids and organic compounds. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2.5 gardner
Density, 25°C/77°F	1.08 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	300-500 cP
Styrene Content	35-40 %
Acid Value	Max 20 mg KOH/g
Shelf Life, Dark, 25°C/77°F	6 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- . Recommended for most commercial FRP fabrication processes such as: hand layup, spray-up, pultrusion, filament winding and resin transfer molding, SMC & BMC
- . For manufacturing pipes and tanks

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoate-1%

Resin Temperature	25°C/77°F
Catalyst	1 (phr) ⁽²⁾
Cobalt octoate 1%	1 (phr)
Gel Time (min.)	10-20 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Reactivity test at 25°C/300cP

25°C - 35°C (a)	12-25
25°C- Exothermic Peak (b)	< 40
b/a	< 1.85
Exothermic Peak °C	150 - 180



AP5002: Unsaturated Orthophthalic Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 70.0	ASTM D 638
Tensile Elongation (%)	Min. 3.0	ASTM D 638
Tensile Modulus (GPa)	Min. 2.8	ASTM D 638
Flexural Strength (MPa)	Min. 120.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.0	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 65.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 38.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP6002: Unsaturated Isophthalic Polyester Resin

Unsaturated Polyester Resin AP6002 AP6002 is an isophthalic acid based resin to provide good heat resistant and resistance to a wide range of acids, alkalis and organic compounds. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2.5 gardner
Density, 25°C/77°F	1.08 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	300-500 cP
Styrene Content	35– 55 %
Acid Value	Max. 15 mg KOH/g
Shelf Life, Dark, 25°C/77°F	6 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- . Recommended for most commercial FRP fabrication processes such as: hand layup, spray-up, pultrusion, filament winding and resin transfer molding, SMC & BMC
- . Suitable for applications where outstanding mechanical properties and excellent
- . To make parts that need chemical and heat resistance
- . For manufacturing pipes and tanks

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoat-1%

Resin Temperature	25°C/77°F
Catalyst (phr) ⁽²⁾	1
1% Cobalt octoate (phr)	1
Gel Time (min.)	10-25 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Resin Viscosity (cP)	300 ± 25
b/a	< 1.8
25° C- Exothermic Peak (b)	< 40
25° C- 35° C (a)	12-30
Exothermic Peak °C	160 - 190





AP6002: Unsaturated Isophthalic Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 77.0	ASTM D 638
Tensile Elongation (%)	Min. 4.0	ASTM D 638
Tensile Modulus (GPa)	Min. 3.0	ASTM D 638
Flexural Strength (MPa)	Min. 120.0	ASTM D 790
Flexural Modulus (GPa)	Min. 4.0	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 85.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 40.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 2 hours at 120°C (250°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP7000: Unsaturated Polyester Resin

Unsaturated Polyester Resin AP7000 is an unsaturated polyester resin based on terephthalic acid. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2 gardner
Density, 25°C/77°F	1.08 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	300-450 cP
Styrene Content	35-40 %
Acid Value	Max 20 mg KOH/g
Shelf Life, Dark, 25°C/77°F	5 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- . Recommended for most commercial FRP fabrication processes such as: hand layup, spray-up, pultrusion, filament winding and resin transfer molding, SMC & BMC
- . Suitable for applications where outstanding mechanical properties and excellent
- . To make parts that need chemical and heat resistance
- . For manufacturing pipes and tanks

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoat-1%

Resin Temperature	25°C/77°F
Catalyst	1 (phr) ⁽²⁾
Cobalt octoate 1%	1 (phr)
Gel Time (min.)	10-20 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Reactivity test at 25°C/300cP

25°C - 35°C (a)	12-25
25°C- Exothermic Peak (b)	< 40
b/a	< 1.85
Exothermic Peak °C	160 - 185





AP7000: Unsaturated Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 75.0	ASTM D 638
Tensile Elongation (%)	Min. 3.2	ASTM D 638
Tensile Modulus (GPa)	Min. 3.0	ASTM D 638
Flexural Strength (MPa)	Min. 120.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.3	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 85.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 38.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP7003: Unsaturated Terephthalic Polyester Resin

Unsaturated Polyester Resin AP7003 AP7003 is a terephthalic acid based resin designed to provide exceptional resistance to corrosion, solvents. This resin offers a good heat resistant and resistance to a wide range of acids, alkalis and organic compounds. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2 gardner
Density, 25°C/77°F	1.06 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	300-600 cP
Styrene Content	35-40 %
Acid Value	Max 20 mg KOH/g
Shelf Life, Dark, 25°C/77°F	6 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- . Recommended for most commercial FRP fabrication processes such as: hand layup, spray-up, pultrusion, filament winding and resin transfer molding, SMC & BMC
- . For manufacturing pipes and tanks

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoat-1%

Resin Temperature	25°C/77°F
Catalyst	1 (phr) ⁽²⁾
Cobalt octoate 1%	1 (phr)
Gel Time (min.)	15-20 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Reactivity test at 25°C/300cP

25°C - 35°C (a)	17-27
25°C- Exothermic Peak (b)	< 40
b/a	< 1.8
Exothermic Peak °C	165 - 185





AP7003: Unsaturated Terephthalic Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 75.0	ASTM D 638
Tensile Elongation (%)	Min. 4.0	ASTM D 638
Tensile Modulus (GPa)	Min. 3.0	ASTM D 638
Flexural Strength (MPa)	Min. 130.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.5	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 90.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 42.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP7005: Unsaturated Terephthalic Polyester Resin

Unsaturated Polyester Resin AP7005 AP7005 is a terephthalic polyester resin. Terephthalic polyester resin is the standard economic resin and the most widely used resin system, particularly in the marine industries. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2 gardner
Density, 25°C/77°F	1.08 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	300-600 cP
Styrene Content	30-40 %
Acid Value	Max 20 mg KOH/g
Shelf Life, Dark, 25°C/77°F	6 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- Recommended for most commercial FRP fabrication processes such as: hand lay-up and spray-up
- Marine industries

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoat-1%

Resin Temperature	25°C/77°F
Catalyst	1 (phr) ⁽²⁾
Cobalt octoate1%	1 (phr)
Gel Time (min.)	15-20 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Reactivity test at 25°C/300cP

25°C - 35°C (a)	12-35
25°C- Exothermic Peak (b)	< 50
b/a	< 2
Exothermic Peak °C	160 - 180





AP7005: Unsaturated Terephthalic Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 65.0	ASTM D 638
Tensile Elongation (%)	Min. 4.0	ASTM D 638
Tensile Modulus (GPa)	Min. 2.8	ASTM D 638
Flexural Strength (MPa)	Min. 110.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.1	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 65.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 38.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.





AP7016: Unsaturated Isophthalic Polyester Resin

Unsaturated Polyester Resin AP7016 AP7016 is a modified isophthalic acid based resin designed to provide exceptional resistance to solvents and chemicals. This resin offers a good retention of mechanical properties at elevated temperatures. This resin is dissolved in styrene.

Typical Liquid Resin Properties⁽¹⁾

Property	Value
Colour	<2 gardner
Density, 25°C/77°F	1.08 ± 0.04 g/cm ³
Dynamic Viscosity, 25°C/77°F	300-600 cP
Styrene Content	35-41 %
Acid Value	Max 20 mg KOH/g
Shelf Life, Dark, 25°C/77°F	6 months

(1) Typical properties are not to be construed as specifications.

Applications and Fabrication Techniques

- . Recommended for most commercial FRP fabrication processes such as: hand layup, spray-up, pultrusion, filament winding and resin transfer molding, SMC & BMC
- . Suitable for applications where outstanding mechanical properties and excellent
- . To make parts that need chemical and heat resistance
- . For manufacturing pipes and tanks

MEKP Gel Time Table

Use MEKP 9.9 % Active, O (e.g. AKZO **M60** or equivalent peroxide system) as catalyst and Cobalt octoat-1%

Resin Temperature	25°C/77°F
Catalyst	1 (phr) ⁽²⁾
Cobalt octoate 1%	1 (phr)
Gel Time (min.)	14-20 ⁽³⁾

(2) phr = parts per hundred resin molding compound

(3) Gel time would be adjustable as request

Curing Properties

Reactivity test at 25°C/300cP

25°C - 35°C (a)	12-23
25°C- Exothermic	< 40
b/a	< 1.8
Exothermic Peak °C	150 - 185





AP7016: Unsaturated Isophthalic Polyester Resin

Casting Properties Typical Properties ⁽⁴⁾ of Post cured ⁽⁵⁾ Resin Clear Casting:

TEST	VALUE	TEST METHOD
Tensile Strength (MPa)	Min. 75.0	ASTM D 638
Tensile Elongation (%)	Min. 3.5	ASTM D 638
Tensile Modulus (GPa)	Min. 3.0	ASTM D 638
Flexural Strength (MPa)	Min. 120.0	ASTM D 790
Flexural Modulus (GPa)	Min. 3.5	ASTM D 790
Heat Distortion Temperature ⁽⁶⁾ °C	Min. 88.0	ASTM D 648 /ISO 75
Barcol Hardness ⁽⁷⁾	Min. 40.0	ASTM D 2583

(4) Typical property values only, not to be construed as specifications.

(5) Cure schedule: 24 hours at room temperature; 3 hours at 85°C (185°F)

(6) Maximum stress: 1.8 MPa.

(7) Test specimen must be prepared by mold.

Handling and Storage Consideration

This resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. The shelf life of styrene containing unsaturated polyester resins will be significantly reduced when exposed to light and/or higher temperatures.

Safety

This resin contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.

