

## ORTHOPHTHALIC UNSATURATED POLYESTER RESIN

ALSO REFERRED TO AS ORTHO OR GENERAL-PURPOSE POLYESTER (GP) & A VERY WIDELY USED IN FRP INDUSTRY. COMMONLY USED IN APPLICATIONS WHERE HIGH MECHANICAL PROPERTIES, CORROSION RESISTANCE, AND THERMAL STABILITY ARE NOT REQUIRED. ALTHOUGH THE UPPER TEMPERATURE LIMIT IS ONLY 500C, IT PERFORMS SATISFACTORY IN WATER AND SEA WATER



| PRODUCT CODE    | APPEARANCE | COLOUR      | SOLIDS % | VISCOSITY 25° C (cP) | Gel Time 25° C (min) | Acid Value (mg KOH/g) | HDT     | APPLICATIONS                     |
|-----------------|------------|-------------|----------|----------------------|----------------------|-----------------------|---------|----------------------------------|
| <b>LC 100</b>   | Clear      | Pale Yellow | 60 ± 2   | 400 ± 100            | 12 ± 4               | Max 20                | 65 - 70 | General purposes / Clear         |
| <b>LC 101</b>   | Clear      | Pinkish     | 60 ± 2   | 400 ± 100            | 10 - 20              | Max 25                | 65 - 70 | GP pre-accelerated               |
| <b>LC 110</b>   | Cloudy     | Pinkish     | 60 ± 2   | 450 - 550            | 13 - 19              | Max 27                | 65 - 70 | GP thixotropic / Non-accelerated |
| <b>LC 111</b>   | Cloudy     | Pinkish     | 60 ± 2   | 450 - 550            | 13 - 19              | Max 27                | 65 - 70 | GP thixotropic / Pre-accelerated |
| <b>LC 113</b>   | Clear      | Pale Yellow | 60 ± 2   | 450 - 550            | 13 - 19              | Max 27                | 65 - 70 | Stone Grade                      |
| <b>LC 114</b>   | Cloudy     | Pinkish     | 60 ± 2   | 400 - 600            | 14 - 20              | 21 - 27               | 65 - 70 | Statue Grade                     |
| <b>LC 115</b>   | Clear      | Pale Yellow | 68 ± 2   | 550 - 750            | 15 - 20              | Max 20                | 65 - 70 | Marble Grade                     |
| <b>LC 116</b>   | Clear      | Colorless   | 70 ± 2   | 1400 - 1700          | 8 - 14               | Max 24                | 65 - 70 | Premium Button Grade             |
| <b>LC 116 G</b> | Clear      | Colorless   | 70 ± 2   | 1400 - 1700          | 8 - 14               | Max 24                | 65 - 70 | Economical Button Grade          |
| <b>LC 117</b>   | Clear      | Faint Pink  | 65 ± 2   | 400 - 500            | 10 - 15              | Max 24                | 65 - 70 | Transparent casting              |
| <b>LC 118</b>   | Clear      | Pale Yellow | 75 ± 2   | 1800 ± 200           | 10 ± 4               | 15 - 20               | 65 - 70 | Car Putty                        |
| <b>LC 119</b>   | Clear      | Pale Yellow | 70 ± 2   | 1400 - 1600          | 20 - 24              | 20 - 26               | 65 - 70 | SMC Grade                        |
| <b>LC 208</b>   | Cloudy     | Bluish      | 62 ± 2   | 1500 - 2000          | 30 - 40              | 15 - 20               | 65 - 70 | Premium Boat Grade               |
| <b>LC 121</b>   | Cloudy     | Bluish      | 62 ± 2   | 1500 - 2000          | 30 - 40              | 15 - 20               | 65 - 70 | Economical Boat Grade            |
| <b>LC 123</b>   | Cloudy     | Pinkish     | 60 ± 2   | 600 - 700            | 20 - 30              | Max 25                | 65 - 70 | Ceramic Binder Grade             |
| <b>LC 130</b>   | Clear      | Bluish      | 58 ± 2   | 150 - 250            | 11 ± 3               | Max 27                | 65 - 70 | Rooflite Resin                   |
| <b>LC 131</b>   | Clear      | Pale Yellow | 75 ± 2   | 1800 ± 200           | 10 ± 4               | 15 - 20               | 65 - 70 | Wood Putty                       |
| <b>LC 132</b>   | Clear      | Pale Yellow | 75 ± 2   | 3000 ± 500           | 10 - 15              | Max 20                | 65 - 70 | Putty Grade                      |

## ISOPHTHALIC UNSATURATED POLYESTER RESIN

AN IMPROVED POLYESTER OFTEN REFERRED TO AS ISO, HAS IMPROVED STRENGTH, HIGH THERMAL STABILITY (550C), AND MILD RESISTANCE TO CORROSION CONDITIONS. USED AS A GEL BARRIER COAT IN MARINE APPLICATIONS DUE TO IMPROVED RESISTANCE TO WATER, SALTS, AND MILD ACIDS.



| PRODUCT CODE    | APPEARANCE | COLOUR      | SOLIDS % | VISCOSITY 25° C (cP) | Gel Time 25° C (min) | Acid Value (mg KOH/g) | HDT     | APPLICATIONS                                        |
|-----------------|------------|-------------|----------|----------------------|----------------------|-----------------------|---------|-----------------------------------------------------|
| <b>LC 200</b>   | Clear      | Pale Yellow | 60 ± 2   | 400 - 500            | 12 ± 4               | 15 - 20               | 75 - 80 | Pipe grade                                          |
| <b>LC 201</b>   | Clear      | Pale Yellow | 60 ± 2   | 400 - 500            | 12 ± 4               | 15 - 20               | 75 - 80 | Pipe grade/pre accelerated                          |
| <b>LC 202</b>   | Clear      | Pale Yellow | 60 ± 2   | 400 - 500            | 12 ± 4               | 15 - 20               | 75 - 80 | Fire retardant                                      |
| <b>LC 203</b>   | Clear      | Pale Yellow | 75 ± 2   | 1800 ± 200           | 10 ± 4               | 15 - 20               | 75 - 80 | Putty Grade                                         |
| <b>LC 204</b>   | Clear      | Bluish      | 70 ± 2   | 150 - 250            | 11 ± 3               | Max 27                | 75 - 80 | Rooflight grade                                     |
| <b>LC 208 M</b> | Cloudy     | Bluish      | 62 ± 2   | 1500 - 2000          | 30-40                | 15 - 20               | 75 - 80 | Premium Marine Grade                                |
| <b>LC 209</b>   | Cloudy     | Pinkish     | 65 ± 2   | 1500 ± 300           | 25-35                | Max 20                | 75 - 80 | Economical Marine Grade                             |
| <b>LC 210</b>   | Cloudy     | Pale Yellow | 60 ± 2   | 450 - 550            | 13-19                | Max 27                | 75 - 80 | Thixotropic non- pre-accelerated                    |
| <b>LC 211</b>   | Cloudy     | Pinkish     | 60 ± 2   | 450 - 550            | 13-19                | Max 20                | 75 - 80 | Thixotropic pre-accelerated                         |
| <b>LC 221</b>   | Cloudy     | Pinkish     | 62 ± 2   | 750 - 850            | 13-19                | Max 20                | 75 - 80 | High thixotropic, pre-accelerated, high performance |
| <b>LC 212</b>   | Clear      | Pale Yellow | 65 ± 2   | 1000 - 1200          | 8-12                 | Max 20                | 75 - 80 | Pultrusion Grade                                    |
| <b>LC 213</b>   | Clear      | Pinkish     | 62 ± 2   | 1500 - 2000          | 30-40                | 15 - 20               | 75 - 80 | Premium Marine Grade                                |

## VINYL ESTER RESIN

IMPROVED POLYESTER IMPROVED VIA BISPHENOL CHLORINATION OR A COMBINATION OF POLYESTER AND EPOXY. CURES, HANDLES, AND PROCESSES LIKE POLYESTER, BUT EXHIBITS HIGHER TEST RESULTS IN CORROSION TEMPERATURE RESISTANCE AND STRENGTH



| PRODUCT CODE  | APPEARANCE | COLOUR      | SOLIDS % | VISCOSITY 25° C (cP) | Gel Time 25° C (min) | Acid Value (mg KOH/g) | HDT      | APPLICATIONS    |
|---------------|------------|-------------|----------|----------------------|----------------------|-----------------------|----------|-----------------|
| <b>LC 600</b> | Clear      | Pale Yellow | 60 ± 2   | 400 ± 100            | 12 ± 3               | 10 Max                | 90 - 100 | General Purpose |
| <b>LC 601</b> | Clear      | Pale Yellow | 55 ± 2   | 400 ± 100            | 15 ± 5               | 10 Max                | 90 - 100 | Superior Grade  |
| <b>LC 602</b> | Clear      | Pale Yellow | 60 ± 2   | 400 ± 100            | 12 ± 3               | 10 Max                | 90 - 100 | Fire Retardant  |

## GEL COAT RESIN

GEL COATS ARE PREPARED FROM A BASE RESIN AND ADDITIVES SUCH AS THIXOTROPIC AGENTS, FILLERS, PIGMENTS, AND OTHERS. THE GEL TEXTURE MAKES THE GEL COAT “STICK” TO VERTICAL SURFACES OF MOLDS WITHOUT DRAPING – IT IS PLACED FIRST IN THE MOLD, SO BECOMES THE OUTER SURFACE OF THE CONSTRUCTION LAYER. GEL COAT RESIN IS USED TO REPLACE PAINT, FOR COSMETIC PURPOSES, AND TO PROTECT FROM THE ENVIRONMENT



## A- ISOPHTHALIC GEL COAT RESIN

| PRODUCT CODE  | APPEARANCE | COLOUR      | SOLIDS % | VISCOSITY 25° C (cP) | Gel Time 25° C (min) | Acid Value (mg KOH/g) | HDT     | APPLICATIONS            |
|---------------|------------|-------------|----------|----------------------|----------------------|-----------------------|---------|-------------------------|
| <b>LC 410</b> | Cloudy     | Pale Yellow | 65 ± 2   | 40000 - 55000        | 10 - 15              | 15 - 20               | 75 - 80 | Clear                   |
| <b>LC 411</b> | Cloudy     | Pinkish     | 65 ± 2   | 40000 - 55000        | 10 - 15              | 15 - 20               | 75 - 80 | Pre-accelerated         |
| <b>LC 412</b> | Cloudy     | White       | 65 ± 2   | 40000 - 55000        | 10 - 15              | 15 - 20               | 75 - 80 | Pre-accelerated (White) |

## B- ORTHOPHTHALIC GEL COAT RESIN

| PRODUCT CODE  | APPEARANCE | COLOUR      | SOLIDS % | VISCOSITY 25° C (cP) | Gel Time 25° C (min) | Acid Value (mg KOH/g) | HDT     | APPLICATIONS            |
|---------------|------------|-------------|----------|----------------------|----------------------|-----------------------|---------|-------------------------|
| <b>LC 440</b> | Cloudy     | Pale Yellow | 65 ± 2   | 40000 - 55000        | 10 - 15              | 15 - 20               | 65 - 70 | Clear                   |
| <b>LC 441</b> | Cloudy     | Pinkish     | 65 ± 2   | 40000 - 55000        | 10 - 15              | 15 - 20               | 65 - 70 | Pre-accelerated         |
| <b>LC 442</b> | Cloudy     | White       | 65 ± 2   | 40000 - 55000        | 10 - 15              | 15 - 20               | 65 - 70 | Pre-accelerated (White) |