# IH830 PMMA, Injection Grade

| PROPERTY | CONDITION | UNIT | METHOD | VALUE |
|---|---|---|---|---|
| **OPTICAL PROPERTIES** | | | | |
| Refractive Index | nd | - | ISO 489 | 1.49 |
| Light Transmittance | 3.2mm | % | ISO 13468-1 | 92 |
| Haze | 3.2mm | % | ISO 14782 | <0.5 |
| **THERMAL PROPERTIES** | | | | |
| Melt Flow Index | 230℃/3.8kg | g/10min | ISO 1133 | 2.3 |
| VICAT Softening Point | B/50 | ℃ | ISO 306 | 109 |
| Heat Deflection Temperature | 1.8MPa | ℃ | ISO 75 | 101 |
| Coefficient of Linear Expansion | - | 1/℃ | ASTM D696 | $6X10^{-5}$ |
| **MECHANICAL PROPERTIES** | | | | |
| Charpy Impact Strength | notched | $kJ/m^2$ | ISO 179 | 1.5 |
| Rockwell Hardness | M scale | - | ISO 2039-2 | 99 |
| Tensile Strength at Break | 5mm/min | MPa | ISO 527 | 71 |
| Tensile Strain at Break | 5mm/min | % | ISO 527 | 5 |
| Tensile Modulus | 1mm/min | GPa | ISO 527 | 2.8 |
| Flexural Strength | 2mm/min | MPa | ISO 178 | 111 |
| Flexural Modulus | 2mm/min | GPa | ISO 178 | 3.0 |
| **GENERAL PROPERTIES** | | | | |
| Density | - | g/㎤ | ISO 1183 | 1.19 |
| Mold Shrinkage | - | % | ASTM D955 | 0.2-0.6 |
| Water Absorption | 24hr | % | ASTM D570 | 0.3 |
| Flammability UL94 | 1.5mm | Class | IEC 60695-11-10 | HB |
| **RECOMMENDED PROCESSING CONDITIONS** | | | | |
| Predrying Temperature | | ℃ | | Max. 90 |
| Predrying Time in Desiccant-Type Drier | | hr | | 3-4 |
| Melt Temperature | | ℃ | | 220-250 |
| Mold Temperature | | ℃ | | 50-70 |

REMARKS : The listed values should be used for reference purpose only.

LG MMA

2017 PMMA & SMMA Brochure

# PMMA
# SMMA

Polymethyl methacrylate &
Styrene–Methyl methacrylate
copolymer

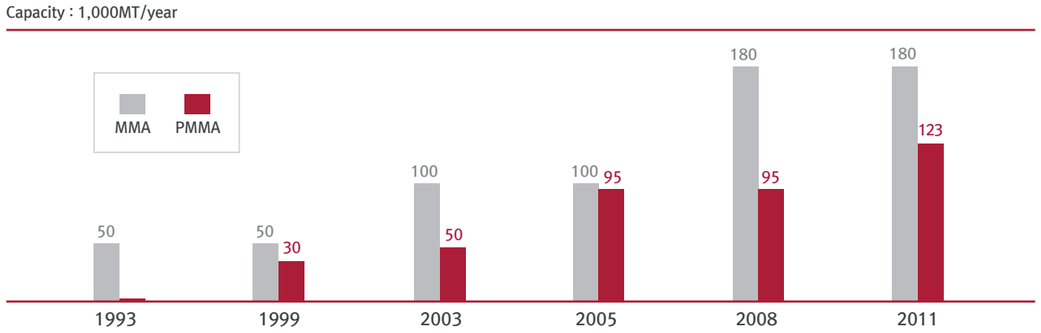
# Introduction of LG MMA

As the leader of the domestic PMMA industry, LG MMA has integrated production facilities from MMA to PMMA and also maintains a technical service system capable of responding immediately to customer needs.
LG MMA was established in 1991 as a joint venture of LG Chemicals, Japan's Sumitomo Chemical and Nippon Shokubai. In 1993, LG MMA completed construction of its first MMA plant, took over the PMMA business from LG Chemicals in 1999, completed its 2nd MMA plant in 2003 and 2nd PMMA plant in 2005.
In addition, the company completed its 3rd MMA plant in 2008 and started producing 180,000 tons of MMA and 123,000 tons of PMMA, becoming the number one domestic supplier and emerging as a world-class MMA producer.

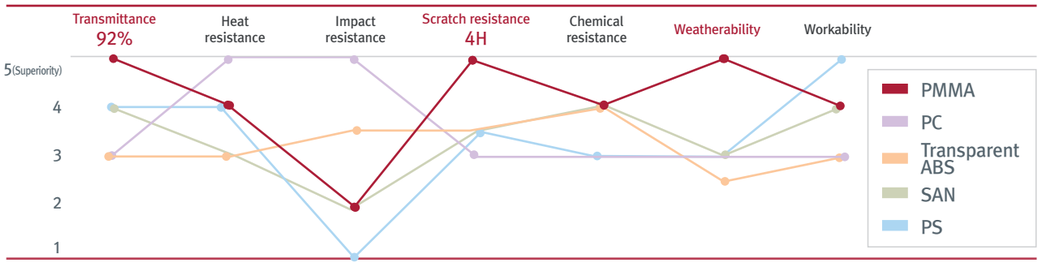




## Production Capacity




## Comparison of LG PMMA with Other Transparent Resins




## Outstanding Characteristics of LG PMMA

PMMA is synthetic resin mainly composed of MMA monomer. With its excellent transparency, weatherability and colorability this highly polymerized material is widely used for automobile and electronic parts.

**High Transparency**
The most excellent transparency among all plastics (Transmits more than 92% of the visible ray area)

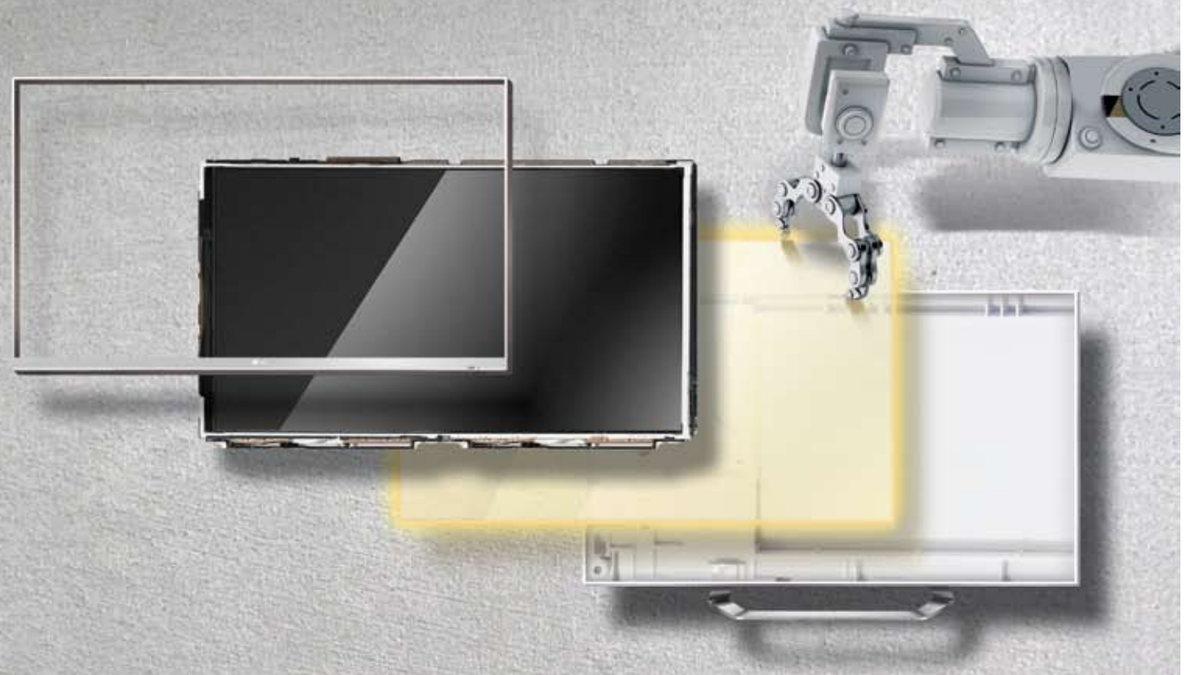
**Excellent Weatherability**
The most excellent weatherability among plastics

**High Scratch Resistance**
Excellent scratch resistance with its high degree of surface hardness among plastics

## Standards & Certification

| Item | | LG PMMA |
|---|---|---|
| Flammability | UL 94 (HB) / CSA (HB) | All Grades |
| Weatherability | AMECA | IH830, IH830A, IH830C, IH830CA, IH830HR, EG920, EH910, HP202, HI835MS, HI835H |
| Hazardous Material | RoHS (Directive 2002/95/EC) JHPC / IMDS | All Grades |
| FDA | US FDA regulation / 21CFR177.1010 | IH830, IG840, IF850, IF870S, HI855M, HI855S, HI855H |
| Management System | ISO14000 (Environment) KGS18000 (Safety) / ISO/TS 16949 (Quality) | All Grades |

# General PMMA
# Optical & Extrusion Grade



## Application

### Light guide panels for LCD

- LED TV
- Monitor
- Note book

### General sheet

- Signboard
- Billboard
- Aquarium
- Soundproof walls
- Lighting dome






## Properties

| | Item | Condition | Unit | Method | Optical Grade | | Extrusion Grade | |
|---|---|---|---|---|---|---|---|---|
| | | | | | HP202 | HP210 | EG920 | EH910 |
| Optical Properties | Light transmittance | 3mm | % | ISO 13468-1 | 92 | 92 | 92 | 92 |
| | Haze | 3mm | % | ISO 14782 | 〈0.5 | 〈0.5 | 〈0.5 | 〈0.5 |
| Thermal Properties | Melt flow index | 230℃, 3.8kg | g/10min | ISO 1133 | 2.0 | 11 | 1.4 | 1.0 |
| | Heat deflection temperature | 1.8MPa | ℃ | ISO 75 | 100 | 98 | 100 | 101 |
| | Vicat softening temperature | B/50 | ℃ | ISO 306 | 106 | 101 | 106 | 108 |
| Mechanical Properties | Charpy Impact strength | notched | $kJ/m^2$ | ISO179 | 1.5 | 1.5 | 1.5 | 1.5 |
| | Rockwell hardness | M scale | – | ISO 2039-2 | 99 | 96 | 98 | 98 |
| | Tensile strength | 5mm/min | MPa | ISO 527 | 72 | 64 | 71 | 70 |
| | Tensile elongation | 5mm/min | % | ISO 527 | 6.2 | 3.0 | 6.0 | 7.5 |
| | Tensile modulusFlexural | 1mm/min | GPa | ISO 527 | 3.1 | 2.9 | 2.9 | 2.9 |
| | Flexural strength | 2mm/min | MPa | ISO 178 | 115 | 83 | 113 | 115 |
| | Flexural modulus | 2mm/min | GPa | ISO 178 | 3.2 | 2.8 | 3.0 | 3.0 |

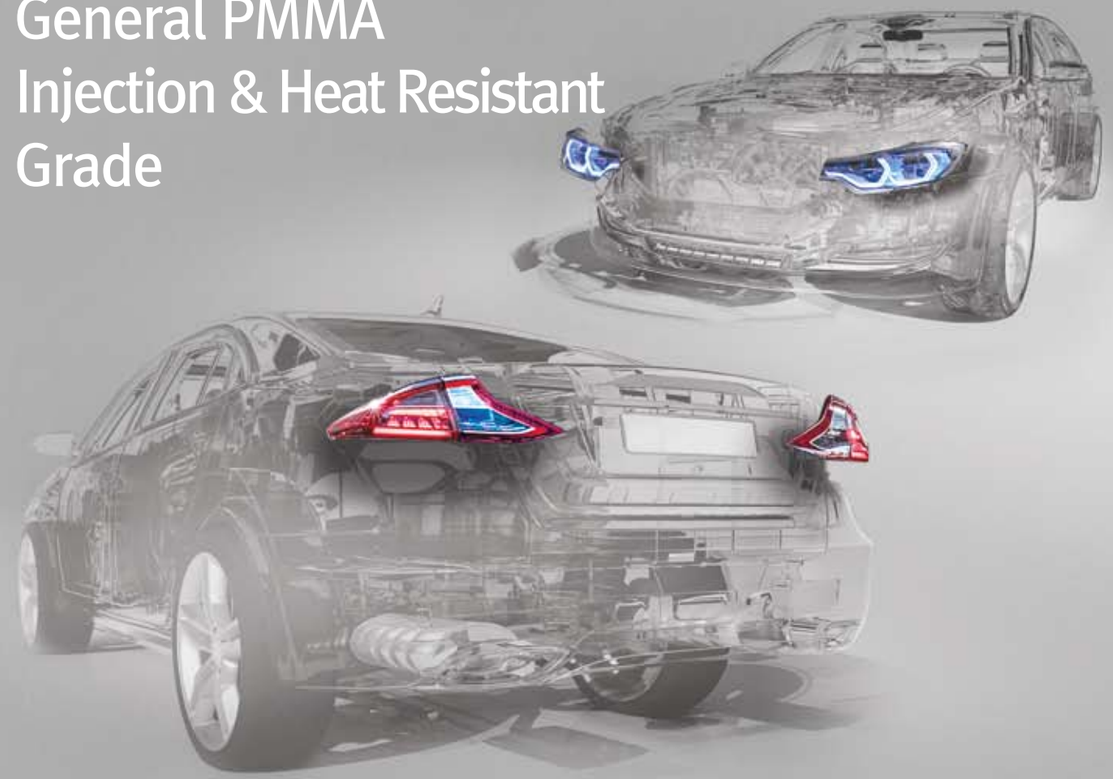
| | Item | Condition | Unit | Method (ASTM/ISO) | Value (in common) |
|---|---|---|---|---|---|
| General Properties | Density | – | $g/cm^3$ | ISO 1183 | 1.19 |
| | Refractive index | nd | – | ISO 489 | 1.49 |
| | Water absorption | 24hr | % | ASTM D570 | 0.3 |
| | Mold shrinkage | – | % | ASTM D955 | 0.2-0.6 |
| | Coefficient of linear expansion | – | 1/℃ | ASTM D696 | $6\times10^{-5}$ |
| | Flammability | 1.5mm | Class | UL94 | HB |
| Electrical Properties | Volume resistivity | – | Ω·cm | ASTM D257 | 〉$10^{15}$ |
| | Dielectric strength | 4kV/s | kV/mm | ASTM D149 | 20 |
| | Dielectric constant | 60Hz | – | ASTM D150 | 3.1 |
| | Power factor | 60Hz | – | ASTM D150 | 0.05 |

REMARKS : The listed values should be used for reference purpose only.

## Typical Extrusion Molding Condition

| Item | | Temperature (℃) |
|---|---|---|
| Cylinder | Feed zone | 170 – 200 |
| | Melting zone | 220 – 250 |
| | Metering zone | 230 – 260 |
| Die | | 220 – 250 |
| Guide Roll | | 80 – 100 |

# General PMMA Injection & Heat Resistant Grade



## Application

### Electronic

- Display window of home appliance

### General goods

- Cosmetic container
- Food container
- Lens
- Stationery
- Accessories

### Automobile

- Rear combination lamp
- Head lamp light pipe & aspherical lens
- Pillar garnish
- Cluster cover window
- Center high mounted stop lamp
- Side repeater lamp
- Emblem
- Map lamp





## Properties

| | Item | Unit | Injection Grade | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | IH830 | IH830L | IH830C | IH830HF | IG840 | IF850 | IF860 | IF870S |
| Optical Properties | Light transmittance | % | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| | Haze | % | 〈0.5 | 〈0.5 | 〈0.5 | 〈0.5 | 〈0.5 | 〈0.5 | 〈0.5 | 〈0.5 |
| Thermal Properties | Melt flow index | g/10min | 2.3 | 2.3 | 2.0 | 4.5 | 5.7 | 13 | 16 | 23 |
| | Heat deflection temperature | ℃ | 101 | 102 | 101 | 103 | 102 | 92 | 91 | 90 |
| | Vicat softening temperature | ℃ | 109 | 111 | 108 | 112 | 98 | 88 | 87 | 86 |
| Mechanical Properties | Charpy Impact strength | $kJ/m^2$ | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| | Rockwell hardness | – | 99 | 101 | 100 | 100 | 95 | 92 | 91 | 89 |
| | Tensile strength | MPa | 71 | 72 | 74 | 64 | 65 | 62 | 60 | 56 |
| | Tensile elongation | % | 5.0 | 4.5 | 5.0 | 3.0 | 4.0 | 4.0 | 3.0 | 2.8 |
| | Tensile modulusFlexural | GPa | 2.8 | 2.9 | 2.9 | 2.9 | 2.8 | 2.8 | 2.8 | 2.8 |
| | Flexural strength | MPa | 111 | 113 | 113 | 116 | 105 | 101 | 96 | 94 |
| | Flexural modulus | GPa | 3.0 | 3.0 | 3.0 | 3.1 | 3.0 | 2.9 | 2.8 | 2.8 |

| | Item | Unit | Heat Resistant Grade | | | |
|---|---|---|---|---|---|---|
| | | | IH830HR | IH830XT | EF120 | IH830HT |
| Optical Properties | Light transmittance | % | 92 | 92 | 92 | 92 |
| | Haze | % | 〈0.5 | 〈0.5 | 〈0.5 | 〈0.5 |
| Thermal Properties | Melt flow index | g/10min | 1.7 | 2.5 | 1.1 | 1.7 |
| | Heat deflection temperature | ℃ | 105 | 111 | 109 | 106 |
| | Vicat softening temperature | ℃ | 113 | 114 | 118 | 113 |
| Mechanical Properties | Charpy Impact strength | $kJ/m^2$ | 1.5 | 1.5 | 1.5 | 1.5 |
| | Rockwell hardness | – | 102 | 101 | 100 | 97 |
| | Tensile strength | MPa | 75 | 68 | 75 | 67 |
| | Tensile elongation | % | 5.0 | 5.0 | 5.0 | 3.0 |
| | Tensile modulusFlexural | GPa | 3.2 | 3.2 | 3.2 | 3.3 |
| | Flexural strength | MPa | 120 | 120 | 120 | 92 |
| | Flexural modulus | GPa | 3.1 | 3.2 | 3.1 | 3.0 |

| | Item | Condition | Unit | Method (ASTM/ISO) | Value (in common) |
|---|---|---|---|---|---|
| General Properties | Density | – | $g/cm^3$ | ISO 1183 | 1.19 |
| | Refractive index | nd | – | ISO 489 | 1.49 |
| | Water absorption | 24hr | % | ASTM D570 | 0.3 |
| | Mold shrinkage | – | % | ASTM D955 | 0.2–0.6 |
| | Coefficient of linear expansion | – | 1/℃ | ASTM D696 | $6\times10^{-5}$ |
| | Flammability | 1.5mm | Class | UL94 | HB |
| Electrical Properties | Volume resistivity | – | Ω · cm | ASTM D257 | $〉10^{15}$ |
| | Dielectric strength | 4kV/s | kV/mm | ASTM D149 | 20 |
| | Dielectric constant | 60Hz | – | ASTM D150 | 3.1 |
| | Power factor | 60Hz | – | ASTM D150 | 0.05 |

REMARKS : The listed values should be used for reference purpose only.

# Impact Resistant PMMA
# Transparent HI Grade

## Application

### Electric / Electronic

- Home appliance housing
- Cellular phone window & key pads
- TV bezel, DVD & VCR player front panel & housing
- Audio front panel





## Properties

| | Item | Unit | HI835 Series | | | | HI855 Series | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | HI835MS | HI835M | HI835S | HI835H | HI855M | HI855S | HI855H |
| Optical Properties | Light transmittance | % | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| | Haze | % | 〈1.5 | 〈1.5 | 〈1.5 | 〈1.5 | 〈1.5 | 〈1.5 | 〈1.5 |
| Thermal Properties | Melt flow index | g/10min | 2.0 | 3.2 | 2.8 | 2.1 | 6.4 | 5.7 | 4.1 |
| | Heat deflection temperature | ℃ | 87 | 83 | 82 | 77 | 79 | 77 | 73 |
| | Vicat softening temperature | ℃ | 97 | 93 | 90 | 86 | 88 | 86 | 78 |
| Mechanical Properties | Charpy Impact strength | kJ/m² | 2.7 | 3.2 | 3.6 | 4.8 | 3.0 | 3.6 | 5.2 |
| | Rockwell hardness | – | 83 | 71 | 59 | 47 | 61 | 53 | 40 |
| | Tensile strength | MPa | 49 | 40 | 39 | 37 | 38 | 35 | 33 |
| | Tensile elongation | % | 28 | 34 | 46 | 54 | 46 | 49 | 41 |
| | Tensile modulusFlexural | GPa | 2.5 | 2.0 | 1.8 | 1.5 | 2.0 | 1.8 | 1.5 |
| | Flexural strength | MPa | 84 | 74 | 67 | 56 | 71 | 64 | 54 |
| | Flexural modulus | GPa | 2.4 | 2.0 | 1.8 | 1.5 | 2.0 | 1.8 | 1.5 |
| General Properties | Density | g/㎤ | 1.17 | 1.17 | 1.17 | 1.16 | 1.17 | 1.17 | 1.16 |

| | Item | Unit | HI5 Series | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | HI572 | HI533 | HI535 | HI537 | HI553 | HI555 |
| Optical Properties | Light transmittance | % | 90 | 91 | 91 | 91 | 91 | 91 |
| | Haze | % | 〈1.5 | 〈1.5 | 〈1.5 | 〈2.0 | 〈1.5 | 〈1.5 |
| Thermal Properties | Melt flow index | g/10min | 19 | 2.6 | 2.3 | 1.2 | 6.5 | 5.0 |
| | Heat deflection temperature | ℃ | 73 | 80 | 76 | 73 | 79 | 75 |
| | Vicat softening temperature | ℃ | 84 | 93 | 87 | 83 | 89 | 85 |
| Mechanical Properties | Charpy Impact strength | kJ/m² | 2.4 | 4.7 | 5.9 | 7.0 | 4.4 | 5.5 |
| | Rockwell hardness | – | 76 | 78 | 64 | 46 | 63 | 45 |
| | Tensile strength | MPa | 39 | 42 | 37 | 34 | 38 | 34 |
| | Tensile elongation | % | 3.5 | 26 | 33 | 35 | 45 | 45 |
| | Tensile modulusFlexural strength | GPa | 2.4 | 2.2 | 1.7 | 1.5 | 2.0 | 1.6 |
| | Flexural modulus | MPa | 82 | 73 | 63 | 48 | 71 | 60 |
| | | GPa | 2.4 | 2.1 | 1.8 | 1.5 | 2.0 | 1.8 |
| General Properties | Density | g/㎤ | 1.17 | 1.17 | 1.17 | 1.16 | 1.17 | 1.17 |

| | Item | Condition | Unit | Method (ASTM/ISO) | Value (in common) |
|---|---|---|---|---|---|
| General Properties | Refractive index | nd | – | ISO 489 | 1.49 |
| | Water absorption | 24hr | % | ASTM D570 | 0.4 |
| | Mold shrinkage | – | % | ASTM D955 | 0.4–0.8 |
| | Coefficient of linear expansion | – | 1/℃ | ASTM D696 | $7\times10^{-5}$ |
| | Flammability | 1.5mm | Class | UL94 | HB |
| Electrical Properties | Volume resistivity | – | Ω · cm | ASTM D257 | $〉10^{15}$ |
| | Dielectric strength | 4kV/s | kV/mm | ASTM D149 | 15 |
| | Dielectric constant | 60Hz | – | ASTM D150 | 3.1 |
| | Power factor | 60Hz | – | ASTM D150 | 0.04 |

REMARKS : The listed values should be used for reference purpose only.

# Impact Resistant PMMA
# Opaque EMMA

## Application of EMMA

PMMA is excellent in impact resistance compared to general glasses, but relatively lower among plastics so it is demanded to be improved in this respect. LG MMA has improved the impact resistance of PMMA using acrylic rubbers, and maintained the weatherability. Impact resistant grade of PMMA is applied to the area where impact strength is required such as signboards, lightings, displays, and vending machines.

## Properties

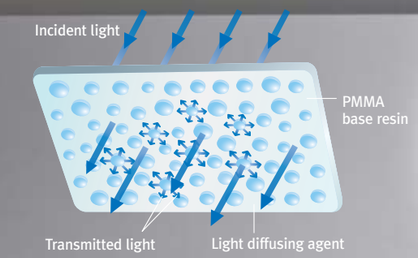
| | Item | Unit | HC353 | HC308 | HC556 | HC503 |
|---|---|---|---|---|---|---|
| Thermal Properties | Melt flow index | g/10min | 3.6 | 8.0 | 7.1 | 3.5 |
| | Heat deflection temperature | ℃ | 90 | 77 | 80 | 75 |
| | Vicat softening temperature | ℃ | 92 | 83 | 86 | 76 |
| Mechanical Properties | Charpy Impact strength | kJ/m² | 4.7 | 10 | 5.2 | 10 |
| | Rockwell hardness | – | 84 | 55 | 57 | 97(R) |
| | Tensile strength | MPa | 41 | 33 | 37 | 26 |
| | Tensile elongation | % | 18 | 30 | 23 | 13 |
| | Tensile modulus | GPa | 2.0 | 2.1 | 2.3 | 1.6 |
| | Flexural strength | MPa | 84 | 65 | 73 | 53 |
| | Flexural modulus | GPa | 2.6 | 2.1 | 2.1 | 1.6 |
| General Properties | Density | g/㎤ | 1.16 | 1.13 | 1.16 | 1.13 |

REMARKS : The listed values should be used for reference purpose only.





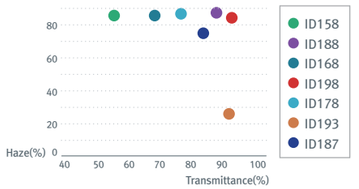
# Diffusion Grade




## Diffusion Grade of PMMA for Lighting Applications

"ID" grade of LG PMMA realizes high light transmittance and high diffusion with our unique diffusion agent and maximizes the efficiency of lighting fixtures without exposing the luminous source of LED illumination. High transmittance/low diffusion, high transmittance/high diffusion and low transmittance/high diffusion products may be used depending on the features of lighting.

### Haze vs. Tt




## Optical properties

| Property | Thickness | Unit | Method | ID Grade | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ID198 | ID193 | ID188 | ID178 | ID187 | ID168 | ID158 |
| Tt | 1mm | % | JIS K 7105 | 91 | 92 | 90 | 88 | 88 | 81 | 70 |
| | 2mm | % | JIS K 7106 | 90 | 91 | 83 | 76 | 82 | 68 | 57 |
| | 3mm | % | JIS K 7107 | 86 | 90 | 75 | 65 | 76 | 57 | 48 |
| Haze | 1mm | % | JIS K 7105 | 76 | 16 | 84 | 86 | 59 | 82 | 83 |
| | 2mm | % | JIS K 7106 | 84 | 30 | 87 | 87 | 75 | 87 | 87 |
| | 3mm | % | JIS K 7107 | 86 | 37 | 87 | 88 | 81 | 87 | 87 |
| Base PMMA | | | | IH830C, IG840, IF850 etc | | | | | | |

The three-digit numbers after 'ID' mean base PMMA, transmittance and haze (based on 2mm thickness).
Base PMMA may apply the injection grade, extrusion grade and impact resistance grade.

# SMMA
# Optical & Injection Grade

## Application

### Light guide panels for

- LED TV
- Monitor
- Note book

### Injection molding compounds for

- food and cosmetic containers





## Characteristics of SMMA

SMMA resin is a transparent copolymer based on MMA (methylmethacrylate) and SM (styrene monomer). While possessing optical characteristics and transparency similar to acrylic resin, it also shows excellent workability and low residual stress of molded product. In particular, low moisture absorption rate compared to general acrylic resin allows for application to high temperature and humidity. It is also appropriate for food and cosmetic containers due to outstanding chemical resistance to solvents, such as alcohol.

- Excellent optical properties, high transmission rate and low haze
- Optical properties similar to acrylic resin
- Low moisture absorption rate
- Outstanding weatherability
- Excellent processability
- Low residual stress in molded product
- Low specific gravity (1.11g/cm³)

## Properties

| | Item | Condition | Unit | Method | Optical Grade | | Injection Grade | |
|---|---|---|---|---|---|---|---|---|
| | | | | | HX238 | HX208 | HX238S | HX208S |
| Optical Properties | Light transmittance | 3mm | % | ISO 13468-1 | 91 | 91 | 91 | 91 |
| | Haze | 3mm | % | ISO 14782 | 〈0.5 | 〈0.5 | 〈0.5 | 〈0.5 |
| Thermal Properties | Melt flow index | 230℃, 3.8kg | g/10min | ISO 1133 | 7.9 | 8.0 | 7.9 | 8.0 |
| | Heat deflection temperature | 1.8MPa | ℃ | ISO 75 | 99 | 90 | 99 | 90 |
| | Vicat softening temperature | B/50 | ℃ | ISO 306 | 102 | 95 | 102 | 95 |
| Mechanical Properties | Charpy Impact strength | notched | kJ/m² | ISO 179 | 1.3 | 1.4 | 1.3 | 1.4 |
| | Rockwell hardness | M scale | - | ISO 2039-2 | 87 | 75 | 87 | 75 |
| | Tensile strength | 5mm/min | MPa | ISO 527 | 65 | 62 | 65 | 62 |
| | Tensile elongation | 5mm/min | % | ISO 527 | 5.2 | 3.0 | 5.2 | 3.0 |
| | Tensile modulus | 1mm/min | GPa | ISO 527 | 2.9 | 3.1 | 2.9 | 3.1 |
| | Flexural strength | 2mm/min | MPa | ISO 178 | 105 | 100 | 105 | 100 |
| | Flexural modulus | 2mm/min | GPa | ISO 178 | 3.2 | 3.1 | 3.2 | 3.1 |
| General Properties | Density | - | g/㎤ | ISO 1183 | 1.15 | 1.11 | 1.15 | 1.11 |
| | Refractive index | nd | - | ISO 489 | 1.53 | 1.55 | 1.53 | 1.55 |
| | Water absorption | 24hr | % | ASTM D570 | 0.18 | 0.12 | 0.18 | 0.12 |
| | Mold shrinkage | - | % | ASTM D955 | 0.2-0.6 | 0.2-0.6 | 0.2-0.6 | 0.2-0.6 |
| | Coefficient of linear expansion | - | 1/℃ | ASTM D696 | $6X10^{-5}$ | $6X10^{-5}$ | $6X10^{-5}$ | $6X10^{-5}$ |
| | Flammability | 1.5mm | Class | UL94 | HB | HB | HB | HB |

REMARKS : The listed values should be used for reference purpose only.

# Molding Guide

## Pre-drying

PMMA and SMMA resins can be used without pre-drying, but they absorb moisture if they are stored for long time or stored under unfavorable conditions. When moisture absorption rate exceeds 0.1%, the molded product can have silver streak formed on the surface or foams formed on the inside. It is desirable to perform preliminary drying according to the following conditions.

| Grade | Temperature | Time |
|---|---|---|
| Optical, General PMMA, SMMA | 70~80℃ | 4~6hr |
| Impact resistant PMMA | 60~70℃ | |

## Annealing

When the molded product contacts paint or organic chemical solvents, it is essential for preventing craze or crack caused by internal stress of the molded product. Effective annealing condition is the highest temperature at which the molded product does not show deformation.

| Grade | Temperature | Time |
|---|---|---|
| HP202, EH910, EG920 | Max. 90℃ | Over 5hr |
| IH830, IH830C, IH830A | Max. 80℃ | |
| IF850, IF870S, SMMA (HX238, HX208) | Max. 70℃ | |
| Impact resistant PMMA | Max. 60℃ | |

## Injection Molding Condition

| Grade | Melting temperature | Mold temperature |
|---|---|---|
| HP202, EH910, EG920, Heat resistant PMMA | 230~260℃ | 60~80℃ |
| IH830, IH830C, IH830A | 220~250℃ | 50~70℃ |
| IF850, IF870S, SMMA (HX238, HX208) | 210~240℃ | |
| Impact resistant PMMA | | |

## Handling & Use

### Static Electricity

It is important to keep the area clean where the material is stored and the surroundings of injection molders as the material easily absorbs dust due to static electricity.

### Cautions in mixing with other grades and resins

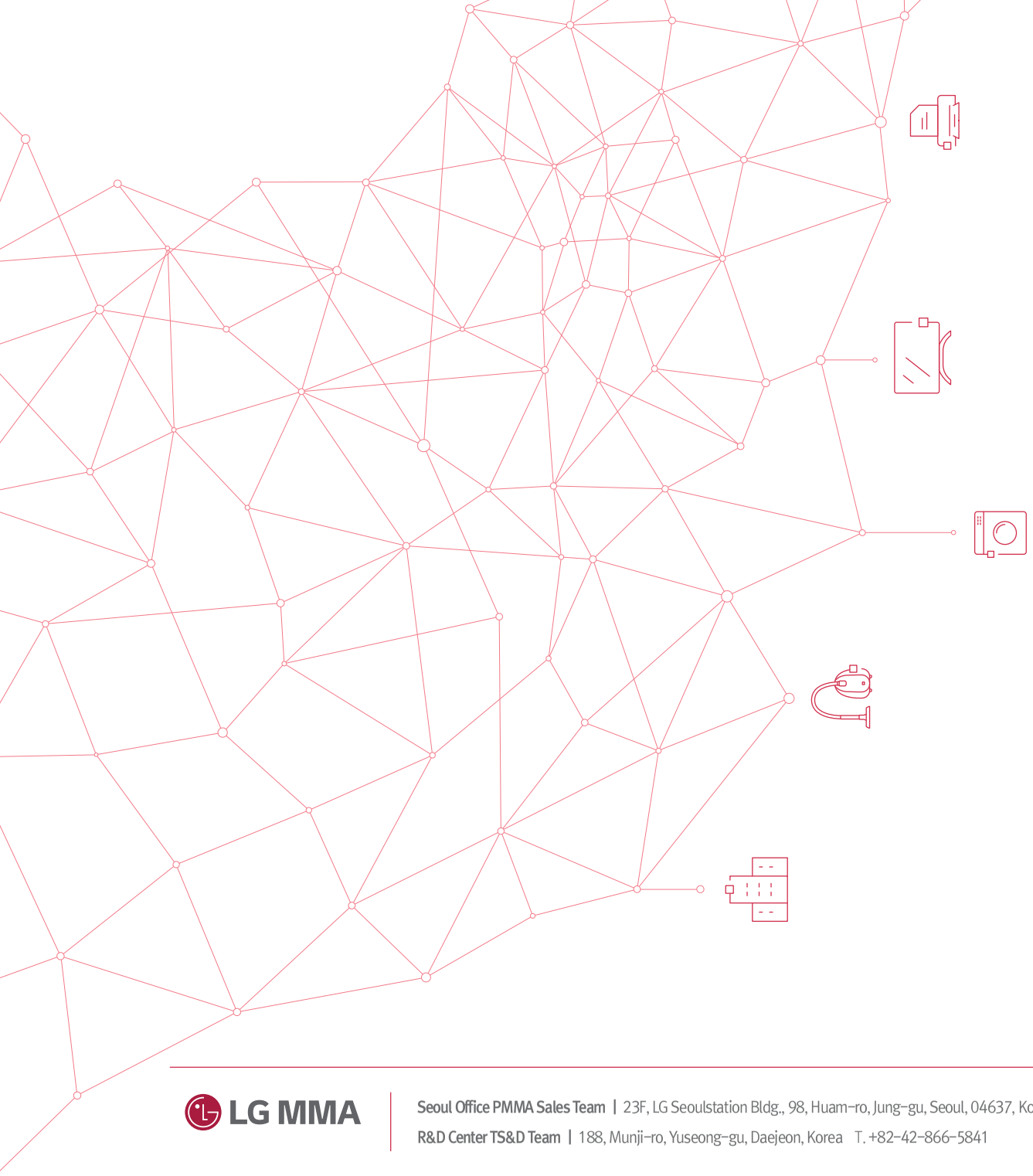
Take caution against mixing the material with other grades or resins when molding products.

### Moisture Absorption

Do not leave the dry material in the air or neglect open sacks of the material.

## Chemical Resistance

| Suitable | Requires attention | Unsuitable | |
|---|---|---|---|
| Dilute acid | Hydrochloric acid | Acid | Ketone |
| Hydrochloric acid (10%) | Alcohol | Sulfuric acid | Acetone |
| Sulfuric acid (30%) | Methanol | Nitric acid | Methyl ethyl ketone |
| Nitric acid (30%) | Ethanol | Acetic acid | Methyl Isobutyl ketone |
| Acetic acid (10%) | Isopropyl alcohol | Formic acid | Ether |
| Alkali | Butyl alcohol | Aromatic hydrocarbon | Furan |
| Sodium hydroxide (50%) | Ether | Benzene | Tetrahydrofuran |
| Aqueous ammonia (10%) | Methyl ether | Toluene | Ester |
| Aliphatic hydrocarbon | Diethyl ether | Xylene | Methyl methacrylate |
| n-Hexane | Isopropyl ether | Phenol | Methyl acrylate |
| n-Heptane | Cyclohexane | Alicyclic hydrocarbon | Methyl acetate |
| n-Octane | Tetrachloromethane | Chlorobenzene | Ethyl acetate |
| Paraffin | Cyclohexanon | Alcohol | Propyl acetate |
| Inorganic salt solution | Benzaldehyde | Benzyl alcohol | |
| Aqueous salt solution (10%) | | Furfuryl alcohol | |
| Oil and fats | | Chlorinated aliphatic | |
| Turpentine oil | | Methylene dichloride | |
| Kerosene | | Ethylene dichloride | |
| Gasoline | | Ethylene drichloride | |
| Solvent naphtha | | Chloroform | |
| Water | | Nitromethane | |
| Sea water | | Nitroethane | |
| Soapy water (1%) | | Nitrobenzene | |
| Oxygenated water (10%) | | Acetaldehyde | |
| Dibutyl phthalate | | Propylene oxide | |
| Dioctyl phthalate | | Dioxane | |
| Formaline (40%) | | Ethyl formate | |
| Ethylene diamine | | Acetonitrile | |
| Diethylamine | | Acrylonitrile | |
| | | Dimethyl formamide | |
| | | Aniline | |



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