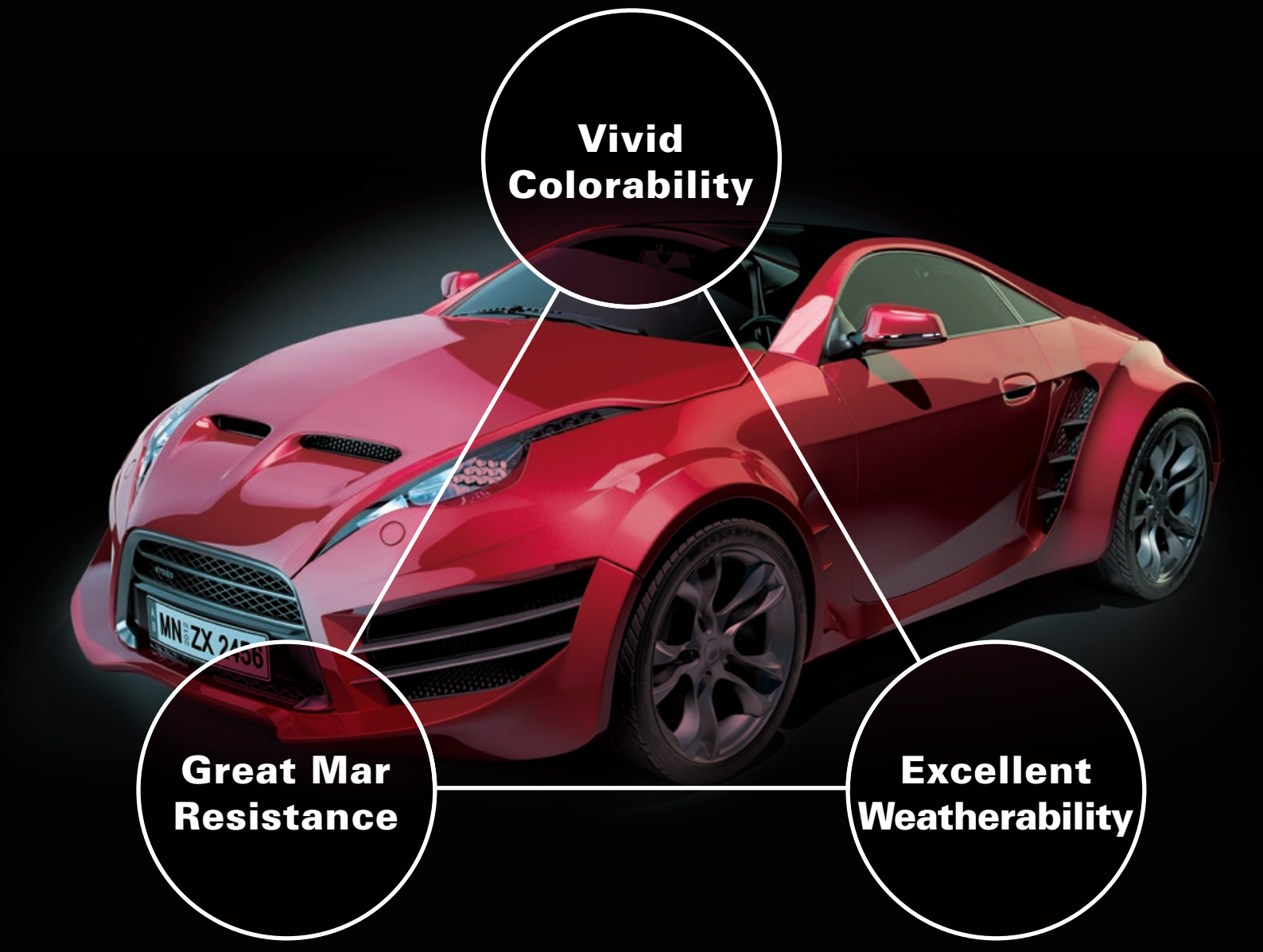
Techno-UMG

# VIVILLOY



# Developed from years of ASA expertise, VIVIL

## Vivid Colorability

Unique ASA alloy allows customers to produce mold-in-color and eliminate the painting process

## Great Mar Resistance

Superior mar resistance due to our proprietary PMMA alloy

**Provides paint-free exterior parts with significant cost reduction**

**Excellent scratch resistance**

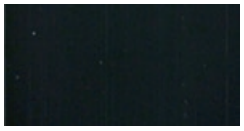
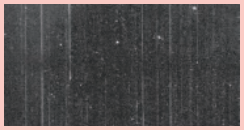
### Typical Applications

Radiator Grille

Door Mirror Cover

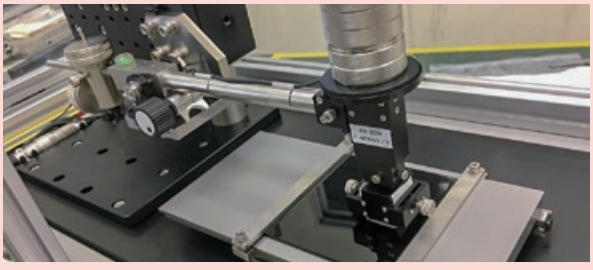
Spoiler

### Scratch Resistance Test (against soft fabrics)

| | ΔL (25°) | Specimen enlarged image (×30) | Dynamic friction coefficient |
|---|---|---|---|
| **VIVILLOY VA090** | **0.3** |  | **0.25** |
| **VIVILLOY VA110** | **1.1** |  | **0.44** |
| PMMA | 2.6 |  | 0.60 |
| ASA | 4.5 |  | 0.65 |

**Test conditions**

| | |
|---|---|
| Test apparatus: | Tribogear TYPE-38 made by SHINTO Scientific |
| Friction element: | Kanakin No.3 (20×20mm) |
| Test speed: | 100mm/s |
| Load: | 4.9N (500 g) |
| Number of reciprocations: | 5 times |
| Determination method: | Judged by ΔL (polygonal colorimeter 25°) |



In-house Scratch Resistance Test Facility

# LOY exhibits the following key characteristics

## Easy Moldability

High flow characteristics enable molding of parts of various shapes and sizes

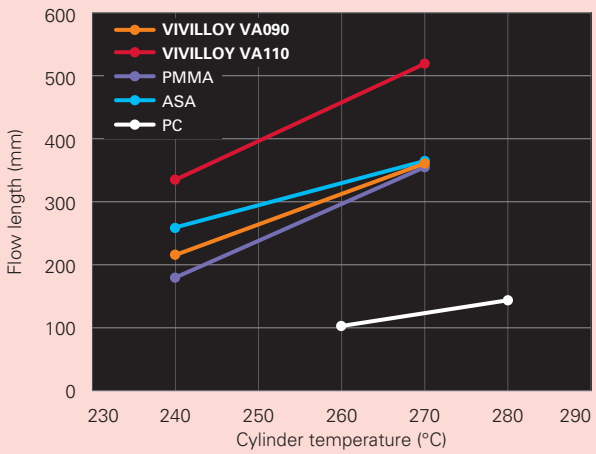
## Excellent Weatherability

Best-in-class weatherability due to our proprietary PMMA alloy and specialized polymerization technology

### Provides more design flexibility for exterior parts

### High gloss and vivid color retention

## Spiral Flow (Sample Thickness 2mm)

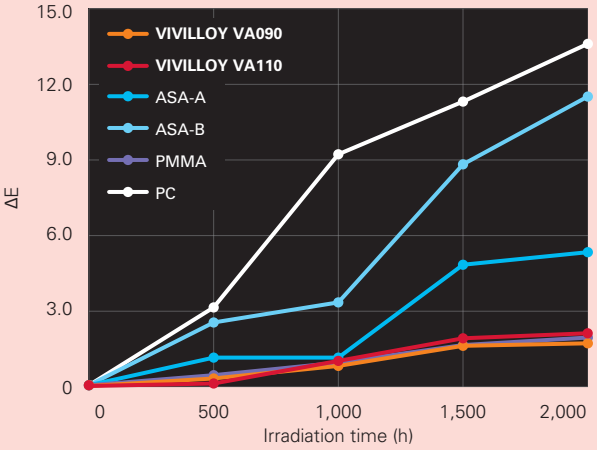



**Higher potential for molding complex parts**

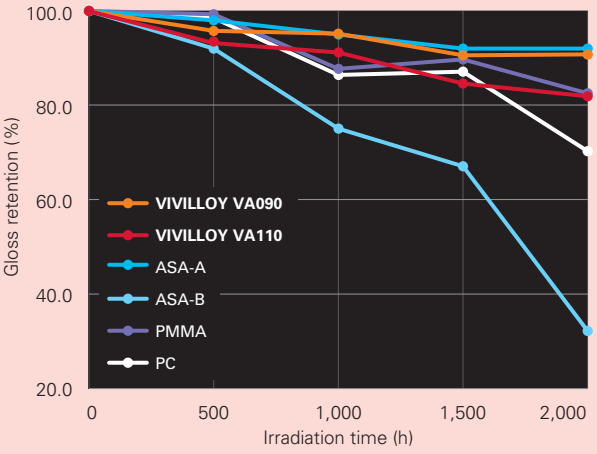
Radiator Grille

## UV Weathering Test

**Color Change (ΔE: SCE)**




**Gloss Change**




**Test conditions**

| | |
|---|---|
| Test apparatus: | SWOM S80HB made by Suga Test Instruments |
| Rain cycle: | 120min/18min |
| Irradiance: | 255W/m² (300nm to 700nm) |
| Sample: | Mirror surface (black color) |

# Physical Properties

| Item | Test method | Condition | Unit | VIVILLOY | | Heat resistant ASA |
|---|---|---|---|---|---|---|
| | | | | VA090 | VA110 | |
| Charpy Impact Strength (Notched) | ISO 179 | 23°C | kJ/m² | **12** | **8** | 12 |
| Tensile Strength | ISO 527 | 23°C, 50mm/min | MPa | **45** | **50** | 51 |
| Flexural Modulus | ISO 178 | 23°C, 2mm/min | MPa | **2,100** | **2,300** | 2,500 |
| Flexural Strength | | | | **65** | **75** | 77 |
| Rockwell Hardness | ISO 2039 | 23°C | R-Scale | **106** | **113** | 107 |
| TDUL | ISO 75 | 1.80MPa | °C | **77** | **78** | 87 |
| Melt Volume Rate | ISO 1133 | 230°C, 10kg | cm³/10min | **6** | **10** | 4 |
| Specific Gravity | ISO 1183 | 23°C | g/cm³ | **1.13** | **1.14** | 1.08 |
| Pencil Hardness | JIS K5600-5-4 | 23°C | — | **HB** | **F** | 2B |
| Falling Ball Impact | Ball Weight: 500g<br>Test Pieces: 100mm×100mm×3mm thickness | 23°C | cm (Non-Break Height) | **240<** | **240<** | 240< |
| | | -30°C | | **130** | **70** | 240 |
| Flow Length | [Spiral Flow Test Condition]<br>Machine: JSW J85AD-110H<br>Mold: 15mm width×2mm thickness<br>Mold Temperature: 60°C<br>Injection Pressure: 98MPa | Cylinder Temperature 240°C | mm | **215** | **335** | 259 |

Notice
You can obtain and use the Material Safety Data Sheet (SDS) from our SALES DEPARTMENT.
Information described on these sheets was obtained based on specific conditions and thus Techno-UMG Co., Ltd. will not guarantee that you can always obtain the name results as described here from the use of our product.
Also, Techno-UMG Co., Ltd. is unable to guarantee the quality and safety of your products manufactured by using our products or any information proposed by our company. Your company by itself has to judge the suitability of the materials to your products.
Also pay full attention to legal restrictions and industrial properties.