



Global advanced materials company **LG Chem**

C Contents

Introducing **LG Group**

Introducing **LG Chem**

Business of **LG Chem**



We identify problems in customers' businesses, solve them, and improve performance by incorporating our services and knowledge into products and offering value aligned with customers' individual needs.

LG Group

History

1947

Established as Lucky
Chemical Industrial Co.
(now LG Chem)

1958

Established as
Goldstar Co.
(now LG Electronics)

1995

Established as
New Corporate Identity
(Lucky Goldstar → LG)

1996

Established as
LG Telecom
(now LG U+)

2003

Established as LG Co.



2017



Sales in 2016
USD 130
Billion (Estimates)



Workforce
222,000 Employees



Vision

Behavioral Mode

Management principles



Jeong-Do
Management



Customer-value
Creation

People-oriented
Management

LG Group

Subsidiary

* Figures represent number of affiliates

* Total of 62 including LG Corp.

15

Chemicals

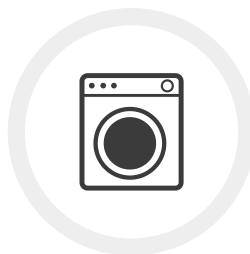
LG Chem
LG Hausys
LG Life Sciences
LG Household & Healthcare
etc.



16

Electronics

LG Electronics
LG Display
LG Innotek
LG Siltron
etc.



30

Telecommunications & services

LG U+
LG CNS
LG International
Serveone
etc.



To be a Global Leader

Growing with customers by providing
innovative materials and solutions



Customer-value
Creation



Strong
implementation



Mutual respect

LG Chem

Financial Results



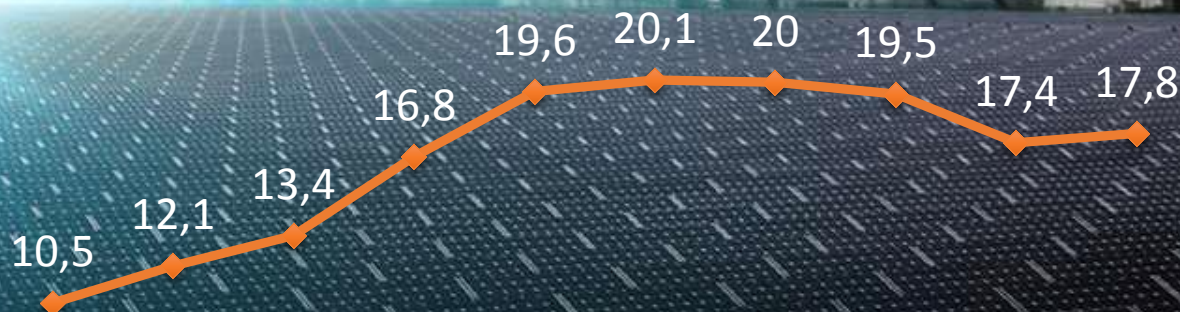
Sales in 2016
USD 17.8
Billion (Estimates)



Workforce
26,600 Employees

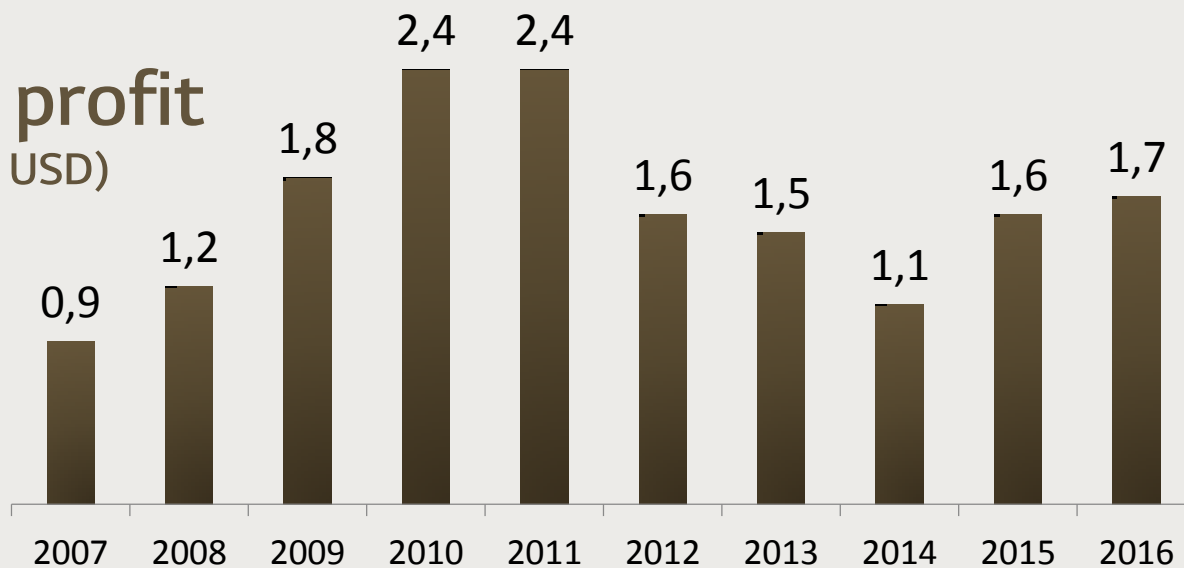
Sales

(Unit: Bilion USD)



Operating profit

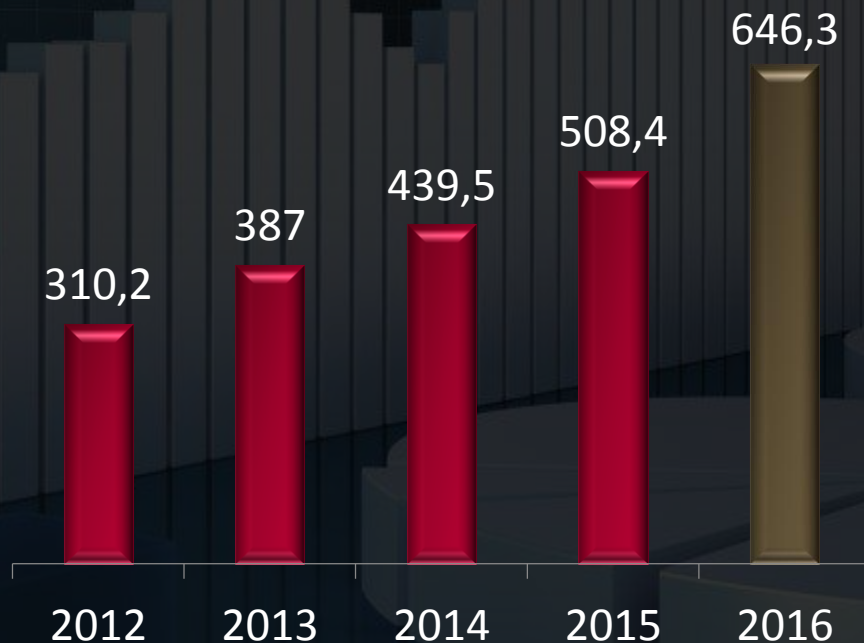
(Unit: 100 Million USD)



LG Chem
Financial
Results

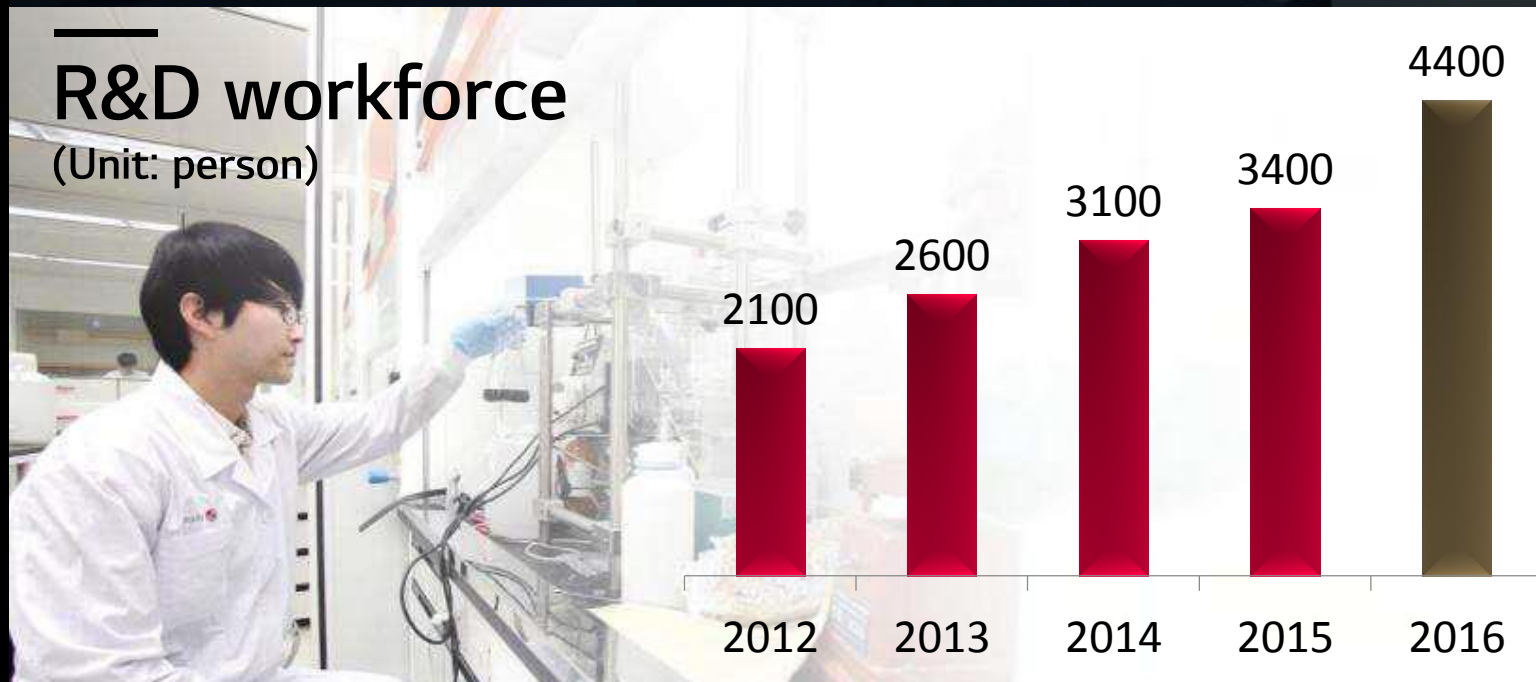
R&D Expense

(Unit: Million USD)



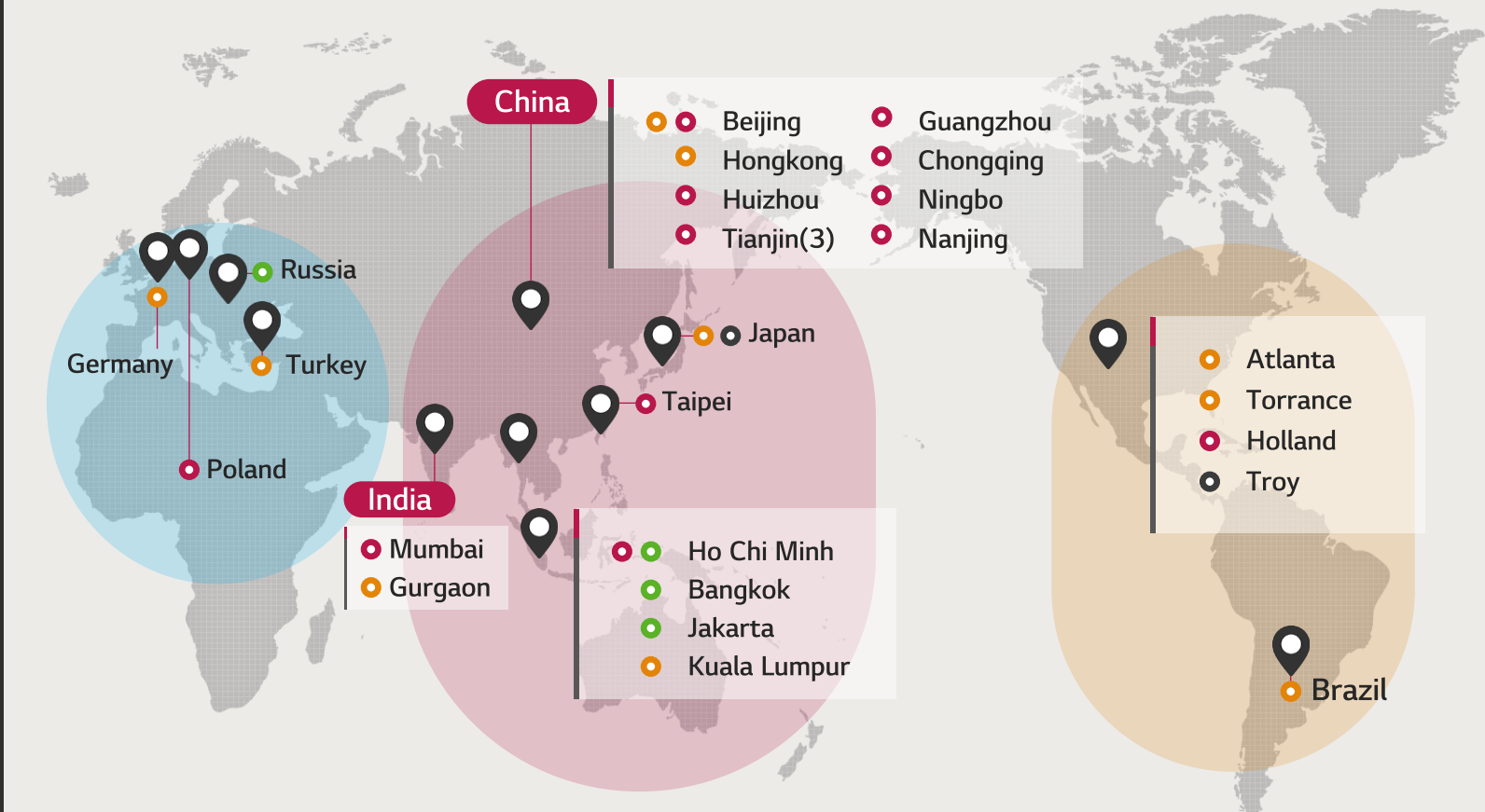
R&D workforce

(Unit: person)



*As of 2016, including LG Life Sciences

LG Chem Overseas Sites



Asia

- Beijing (Est.2004) - Polarizer
- Tianjin (Est.2004)-EP (Est.2005)-PVC,VCM,EDC (Est.2009)-SBS
- Guangzhou (Est.2002)-EP
- Chongqing (Est.2015)-EP
- Ningbo (Est.1995)-ABS, SBL, EP
- Nanjing (Est.2003) – Mobile Battery, Polarizer (Est.2014) – Automotive Battery
- Huizhou (Est.2003) – ABS
- Hongkong

America

- Atlanta
- Torrance
- Troy
- Holland (Est.2000) – Automotive Battery
- Sao Paulo

Europe

- Wroclaw (Est.2005)- Polarizer, EP
- Frankfurt
- Moscow
- Istanbul

● Manufacturing Subsidiaries(14)
 ● Marketing Subsidiaries(10)
 ● Representative(5)
 ● R&D Center(2)



LG Chem Poland



Solution*Partner*

EP compounding

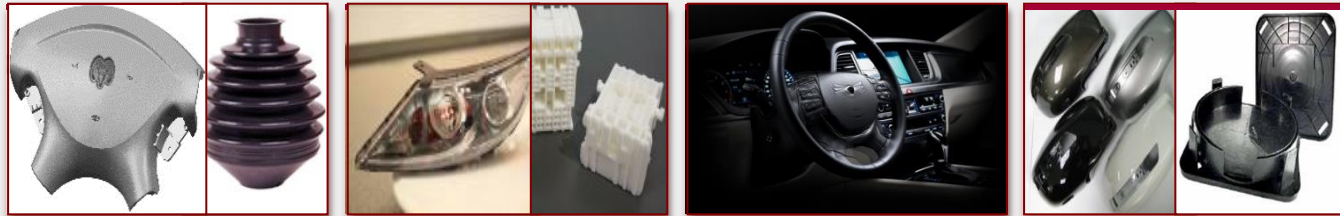
*First and, as of today, only
production plant of LG
Chem in Europe.*

Engineering Plastics (EP)

LG Chem's engineering plastics(EP) processes produce high-performance materials that are more specialized and lighter than general plastics. These materials are used in various applications including automobiles and electronic parts.

Applications

Exterior & Interior Decoration of a Car/ Engine Parts



TV/Mobile device



Billboards



Cable



Spectacle Lenses



LG Chem Poland

Venue

LG Chem Poland Sp. z o.o.
2010 (Greenfield Startup) 36.000 m²

Implementation

Jan.2011 ~ Jan.2012

Start of production

Jan. week 3, 2012

Location

Poland, Biskupice Podgórne (Wrocław)

Workforce

~130 employees

Capacity

25.000 Tons a year
Projection to 50.000 Tons

Certification

ISO 9001
ISO 14001
ISO TS 16949

Portfolio

LUPOY
LUPOX
LUPOS
LUMID, LUXY
LUMILOY, LUSEP



LG Chem Product Portfolio

Customer-oriented R&D

Wide range of product portfolio

Market-driven material development

Collaboration among LG companies

Chemical descriptions

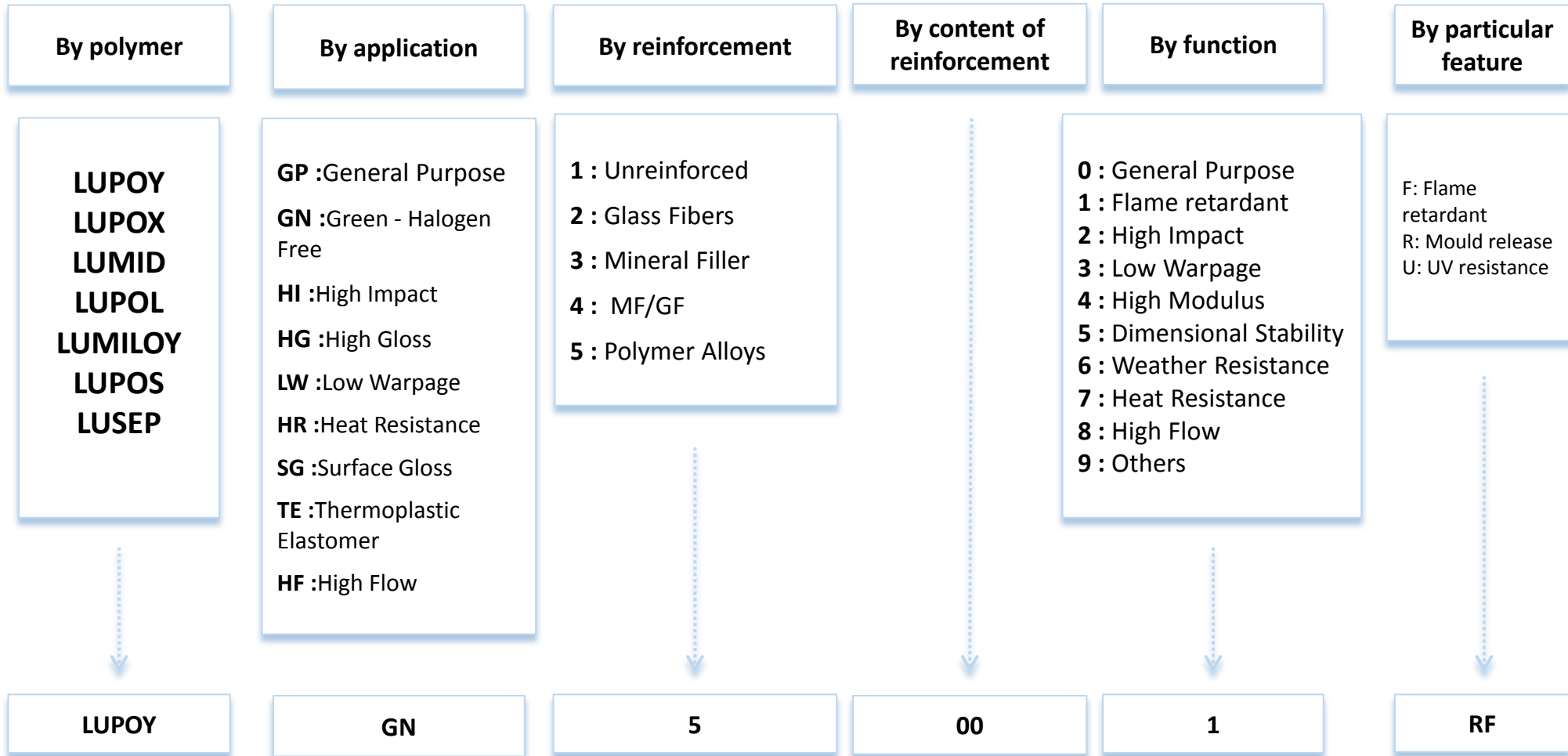
Trade name

Polycarbonate	PC PC Compound, PC alloy	LUPOY ✓
Polyester	PBT, PBT Compound, PBT alloy PBT/Styrenics alloy	LUPOX ✓ LUMAX ✓
Polyamide	PA compound, PA alloy	LUMID ✓
TPE	TPEE (Ester Type Elastomer) TPO (Olefin Type Elastomer)	KEYFLEX BT ✓ KEYFLEX TO ✓
Olefin	PP Compound	LUPOL
mPPE	PPE/HIPS, PPE/PA alloy	LUMILOY ✓
Styrenics	Reinforced ABS & SAN	LUPOS ✓
Acetal	POM, POM Compound	LUCEL
Heat Resistant Resin	PPS & SPS Compound	LUSEP
Conductive Resin	ABS, PS, PC, mPPE, PPS Compound	LUCON

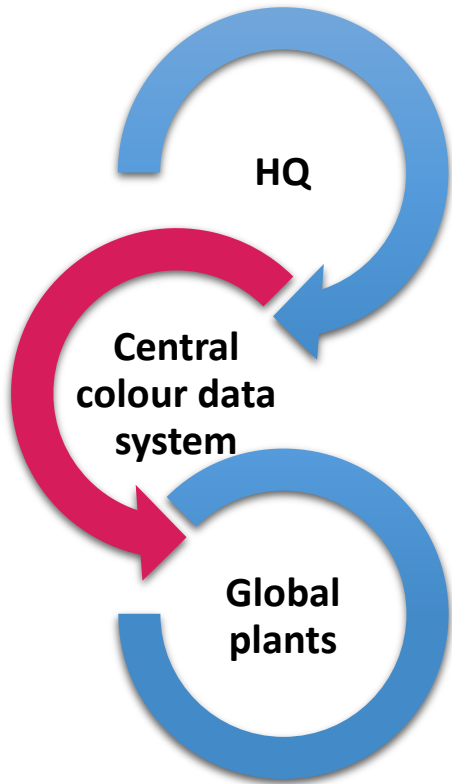
✓ : Products compounded in Poland

EP materials

LG Chem product nomenclature



LG Chem Color Design Center



Speed

5.6 days from request to sample



Accuracy

< 7% re-coloured before approval



Experience

6,300 matching requests per year

Over 20 years of colour-matching experience.
Fast and accurate response.

LG Chem Reliable Product Quality

LG Chem's products are up to global quality standards.

ISO 9001

ISO 14001

ISO/TS 16949

IEEE 1680-3



► Recognitions from OEMs



“World Excellence Awards”
Silver (2014)

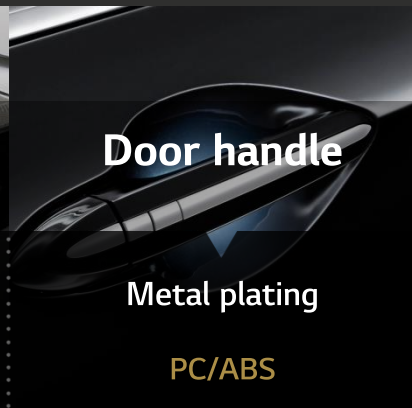
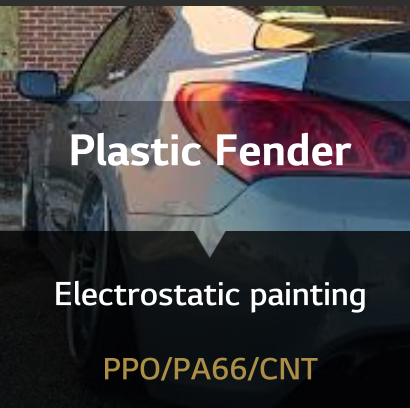
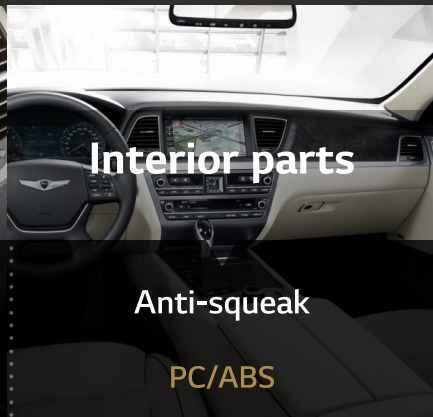
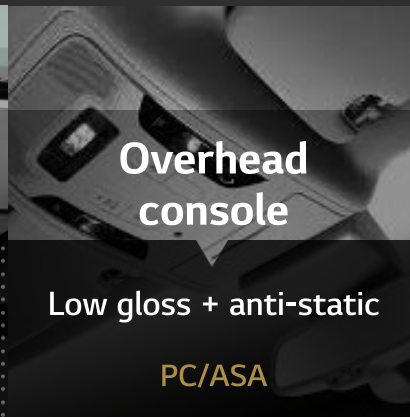


“Supplier of the Year”
Consecutive 5 years
(2010 - 2014)

Engineering Plastics for automotive

Solutions for automotive design

Innovative materials

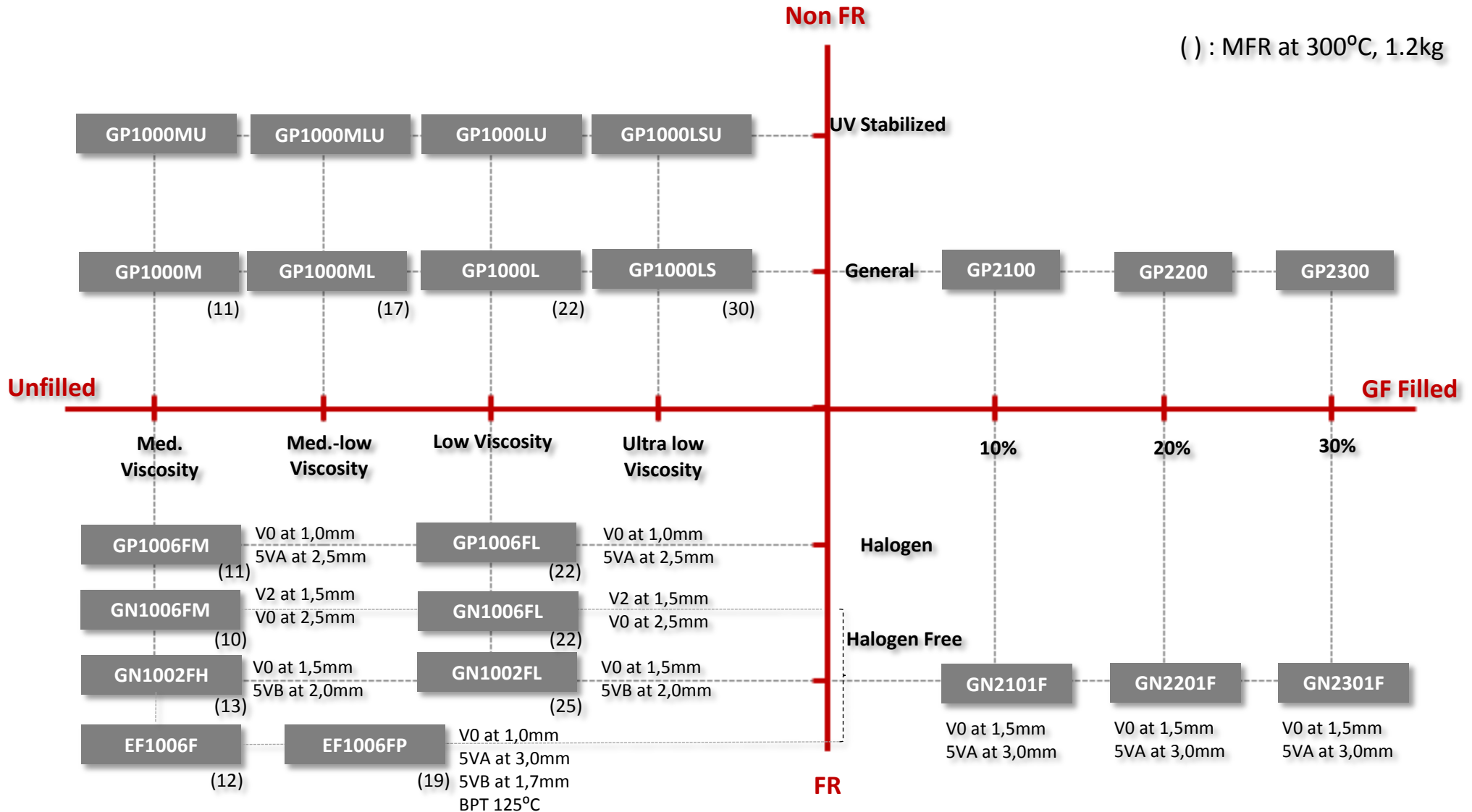


EP materials – LUPOY



EP materials - LUPOY

PC products



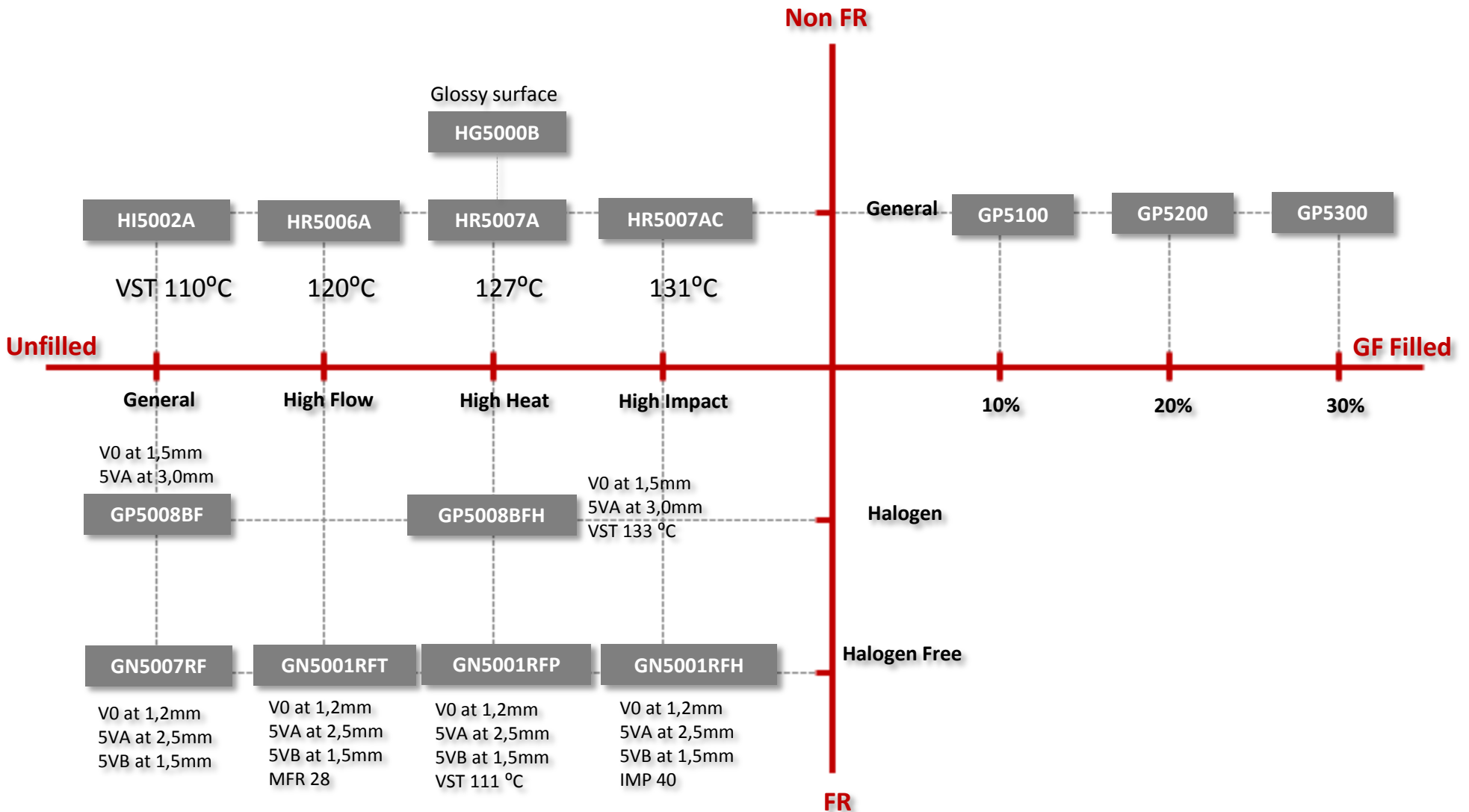
EP materials - LUPOY

PC products

PC Compounds		Properties		Corresponding Grades		
		Melt Index	HDT	Sabic (Lexan)	Bayer (Makrolon)	Others
General Purpose	GP1000M	11	130	141/143(R)	2805/2807	
	GP1000ML	17	132	121/123(R)	2605/2607	Calibre 301-15 Lupilon S300 Lupilon 3001R
	GP1000L	22	130	HF1110/1130(R)	2405/2407	Calibre 303EP
Flame Retardant (Halogen)	GP1006FM	11	130	940/943	6485/6487	Arnite T06 200SNF Ultradur B4406
	GP1006FL	22	130	920/923	6265/6287	Xantar MX1000
Flame Retardant (Halogen-free)	GN1002FH	13	118	ML6412	AL2447	Xantar FC23R
	GN1006FM	10	130	955A/AU 945A/AU 925A/AU	6555/6557 6455	InfinoTH-1100 Emerge 4610-10
	GN1006FL	22	130	915AU	2465/2665	Emerge 8330
GF Reinforced	GP2100	13	140		1095	
	GP2200	9	140			Sicoklar UG20FV
	GP2300	12	140	3433R	8345	
GF Reinforced Flame Retardant	GN2101F	8	138	505R	9415/9417	Emerge 8701
	GN2201FM	7	142	3412R/3412HF	9425/9125	Emerge 8702
	GN2301F	5	145	3413R		Xantar G6F 23R

EP materials - LUPOY

PC/ABS products



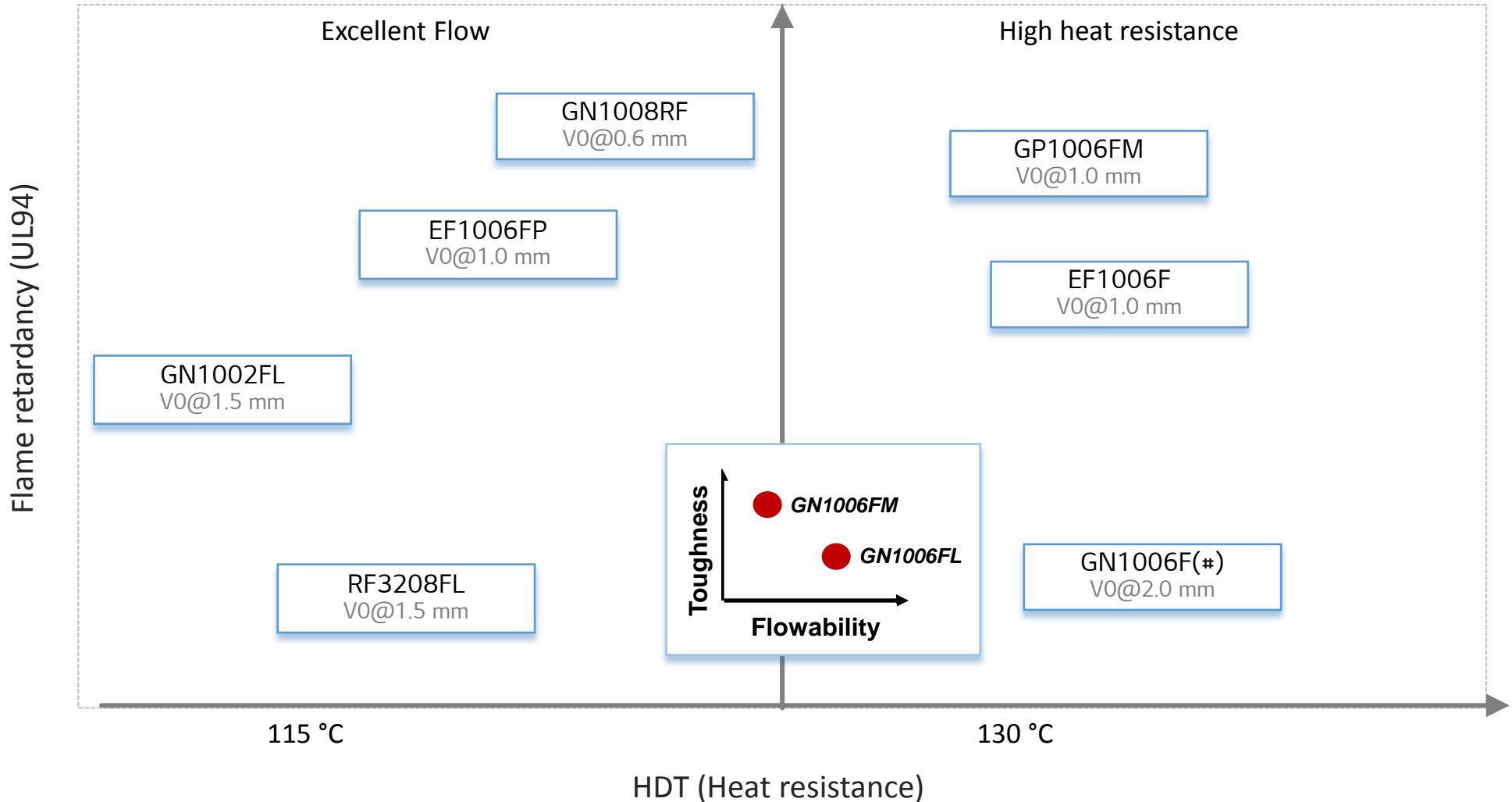
EP materials - LUPOY

PC/ABS products

PC/ABS Alloys		Properties		Corresponding Grades		
		Melt Index	HDT	Sabic (Cycloy)	Bayer (Bayblend)	Others
General Purpose	HI5002A	8	103	C10000HF	T45	Viplex A273F
	HR5006A HR5007A	4,5	108	XCY620	T65/T65XF	Pulse A35-105
	HR5007AC	4	115	C1200HF	T85/T85XF	Pulse A35-110
	MP5000AM	5,5	98	CP8320	T45PG	
Flame Retardant (Halogen)	GP5008BF	5	11	C2100		
	GP5008BFH	22	123	C2100HF		Infino VB1401
Flame Retardant (Halogen-free)	GN5001EF	8	107	CE3510	FR3030	Pulse 6000BG
	GN5001RF	16	91	C2800	FR3005	Starex NH1017
	GN5001RFG	25	94		FR3008	Infino NH1027
	GN5001RFH	13	103	C2950/2951	FR3010	Infino GC1050
	GN5001RFP	20	108	CY6110	FR3110	
	GN5007FL GN5007FM	30 18	117 120	CH6410	KU2-1514	Xantar CF407 Vampaloy 0024 V0 13
GF Reinforced	GP5100	5	110	C4210/C4210HF	T88 GF10	Pulse 979
	GP5200	3	114	C4220	T88 GF20	
	GP5300	1,5	118		T88 GF30	

PC Lupoy

Halogen (GP) and halogen-free (GN, EF) portfolio.



PC/ABS for E&E

Applications



N-PC

Laptops, tablets



Smart grid LED Lighting



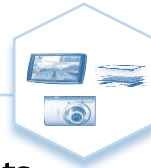
Display

TV Screens, monitors



M/P

Mobile phones, smartwatches



Small IT and components

Cameras, navigation, small devices



Office automation

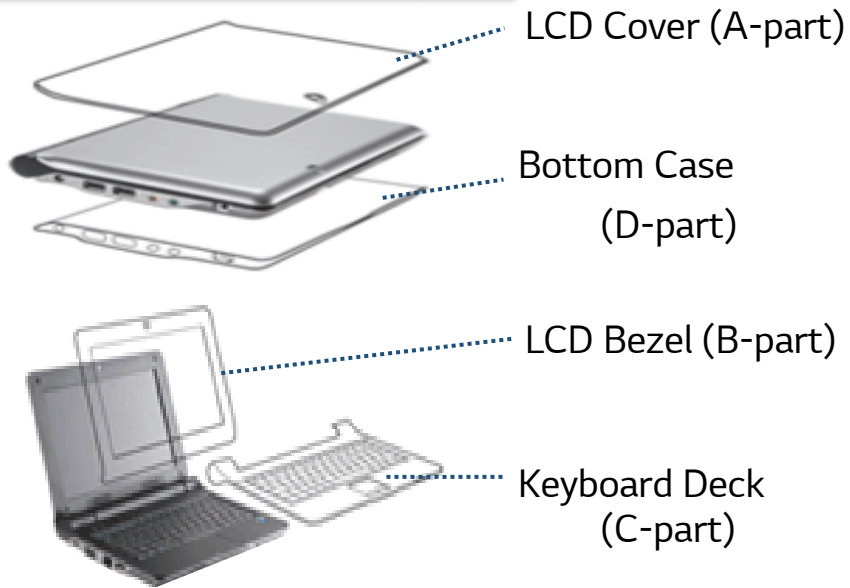
Printers, scanners

LG Chem offers many years of experience in providing material solutions for the E&E market, covering all sectors of electronic applications.

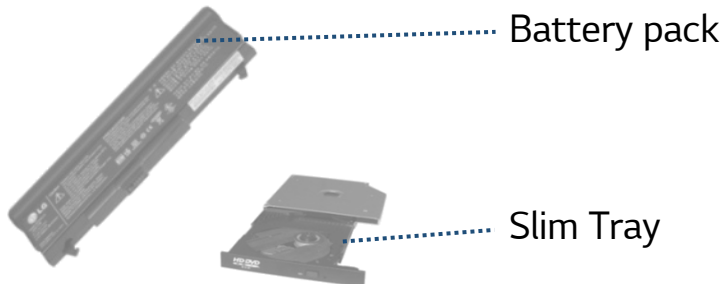
PC & PC/ABS Lupoy

Materials for notebook

Notebook PC Housing



Accessories



High Impact

GN5001RFD

1.0mm V-0

ER5001RFG

PCR content > 30%

EPEAT applicable

High Strength
(MF reinforced)

GN5151RFA

High Strength

GN5101RF

Medium Strength

ER5151RFA(L)

High Strength

EPEAT applicable

PCR content > 30%

Anti-Scratch

SG5009FA

High gloss, Good Flow

High stiffness
(GF reinforced)

GN2253F, GN2403F, GN2503F

High stiffness, Low distortion

Heat Resistance

GN1008RF, GN1008RFA

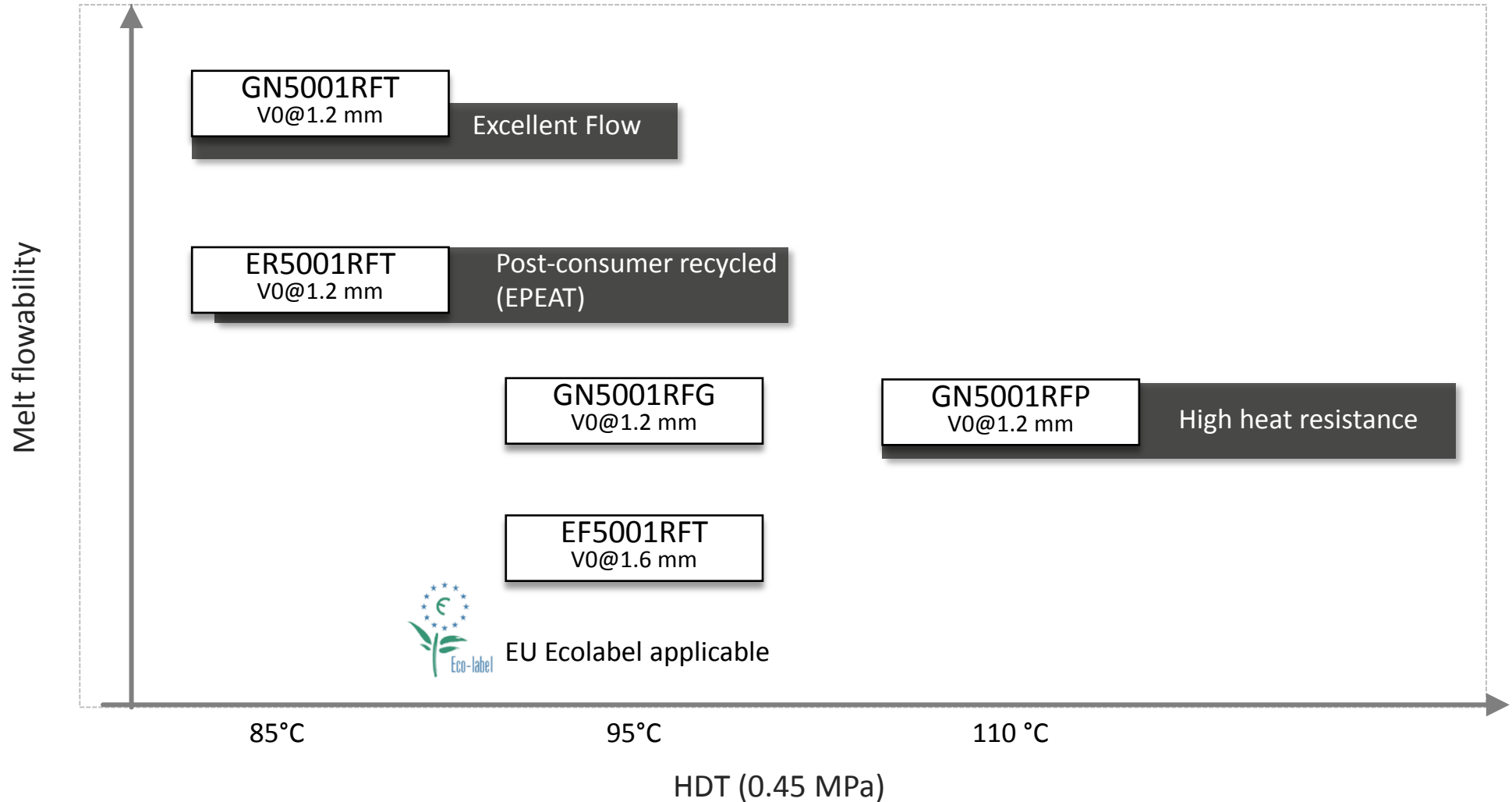
High impact, 0.6mm V-0

Low Distortion
(MF reinforced)

GN5151RFH / GN5151RFG

PC/ABS Lupoy

Flame retardant PC/ABS for display application



Materials for charger and adaptor



CTQ	Grade	Characteristic
<ul style="list-style-type: none"> • High heat resistance • Ball Pressure Temp : Max 125°C • RTI : Max 120°C • Flame retardant 	LUPOY GN5007FM	<ul style="list-style-type: none"> - V0@1.5mm (Non-Br,Cl) - RTI : 95/90/95 (1.5mm) - High Impact strength - High flow ability
<ul style="list-style-type: none"> • V-0 @ 0.75~1.5mm • Halogen Free (Some Cases) • Impact Strength • Ball Drop Test : 500g, 1.3~1.5m • Finished good drop : 80~100cm 	LUPOY GN1002FH	<ul style="list-style-type: none"> - V0@1.5mm (Non-Br,Cl) - RTI : 80/80/80 (1.5mm) - High Impact strength - High flow ability
<ul style="list-style-type: none"> • Chemical Resistance • Cooking oil, Hand Cream, • Household, Cleaner... 	LUPOY EF1006F(#)	<ul style="list-style-type: none"> - V0@1.0mm (Non-Br, Cl, P) - RTI : 120/115/120 (1.5mm) - High Impact strength - High Heat resistance

Lupoy

Materials for digital camera housing

CTQ	Grade	Characteristic
Housing <ul style="list-style-type: none">• High impact• Paintability• Processability	LUPOY GN5001RF	<ul style="list-style-type: none">- Flame retardant (Non-Br, Cl)- High dimensional stability- Good mechanical balance- Good processability- High weather resistance



Lupoy

Point of sale system

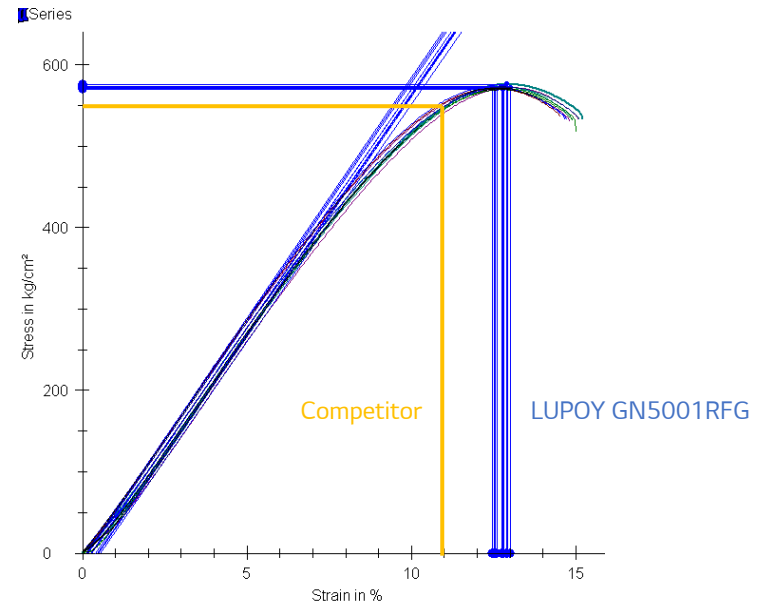
Challenge

POS machine has many boss and button holes, so weld strength of material is very important. LUPOY GN5001RFG has a much better weld strength than competition.



Solution

LG Chemical has solved existing boss crack problem through development of LUPOY GN5001RFG and boss design solution, which is now widely used commercially



EP materials - LUPOY

EN45545-2 Railway Standard

Requirement	Method/norm	Measured quantity	Unit	Measured value	Critical value			Crossing coefficient		
					HL1	HL2	HL3	HL1	HL2	HL3
R22	T01 EN ISO 4589-2	IO	%	49,0	28	28	32	0,57	0,57	0,65
	T10.03 EN ISO 5659-2, 25 kW·m ⁻²	D ₃ max	-	124	600	300	150	0,21	0,41	0,83
	T12 NF X 70-100-1 and -2, 600 °C	CIT _{NLP}	-	0,24	1,2	0,9	0,75	0,20	0,26	0,31
R23	T01 EN ISO 4589-2	IO	%	49,0	28	28	32	0,57	0,57	0,65
	T10.03 EN ISO 5659-2, 25 kW·m ⁻²	D ₃ max	-	124	-	600	300	-	0,21	0,41
	T12 NF X 70-100-1 and -2, 600 °C	CIT _{NLP}	-	0,24	-	1,8	1,5	-	0,13	0,16

The tested product meets the requirements of R22 and R23 according to EN 45545-2:2013+A1:2015 for safety level HL1, HL2 and HL3.



GN3101EF

Compliant with EN45545-2 railway standard R22 and R23



LG Chem Metal Plating PC/ABS

Adhesion Evaluation of Plating

Peel off strength test

Test conditions

- Specimen : 100mmx100mm
- Speed : 50mm/min
- Width: 10mm

Test Apparatus



※ Unit : N/cm

Excellent adhesion
Good rubber dispersion
Less gas & pit problem

Peeling
test results

LG Chem	MP5000AM	3.1
	MP5000AMK	5.2
	MP5000AMD	4.0
	MP5000AT	7.3
Competition	A	2.7
	B	3.5

LG Chem Metal Plating PC/ABS

General material properties comparison

Properties	Method	Unit	A	B	LUPOY MP5000AM	LUPOY MP5000AMK	LUPOY MP5000AMD	LUPOY MP5000AT
Mechanical								
Tensile Strength, yld	ASTM D638	Kgf/cm ²	490	550	470	420	470	430
Tensile Elongation, brk	ASTM D638	%	70	130	140	140	110	130
Flexural Modulus (1/4")	ASTM D790	Kgf/cm ²	20,000	23,000	20,500	19,500	20,500	17,000
Flexural Strength (1/4")	ASTM D790	Kgf/cm ²	700	810	690	620	690	630
Impact								
Izod Impact, notched (1/4"), 23°C	ASTM D256	Kgf·cm/cm	51.5	50.0	49.0	49.0	50.0	52.0
Izod Impact, notched (1/4"), -30°C	ASTM D256	Kgf·cm/cm	21.5	21.5	27.0	33.0	35.0	39.0
Thermal								
HDT, 18.6 kg/cm ² , 6.4mm, unannealed	ASTM D648	°C	96	102	98	97	107	105
Physical								
Specific Gravity	ASTM D792	g/cm ³	1.08	1.12	1.11	1.10	1.12	1.12
Melt Flow Rate (250°C, 2.16Kg)	ASTM D1238	g/10min	2.5	4.6	3.7	3.0	1.9	2.6

EP materials

Chemical Resistance PC/ABS for interior applications ► LUPOY NS5000CR/CRT

Providing enhanced chemical resistance of PC/ABS material reducing chemical cracks by air fresheners & sun block for interior parts.



- Excellent chemical resistance
- Good impact strength under low temperature
- Globally unique material for PC/ABS

Product specification

- Commercial production for HKMC
- Sole homologation of HKMC SC Spec (MS214-04 Type C)

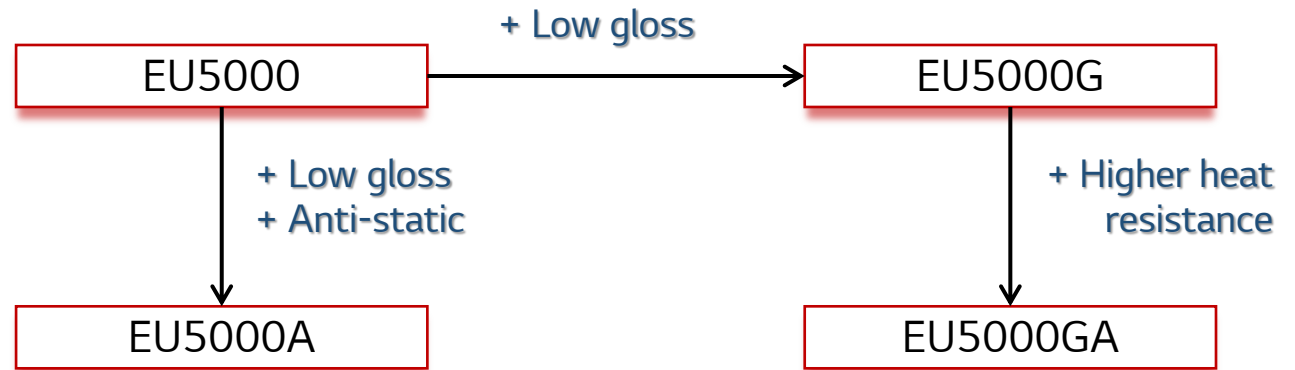
Liquid Type	Gel Type Lavender flavor	Liquid Type Lemon flavor	Sun Block SPF 30
General			
LUPOY NS5000CR			

EP materials

Low gloss PC/ASA



Good UV stability + extra characteristics



* Resistivity 10^{12} - 10^{13} Ω /sq

Anti-static Property Comparison

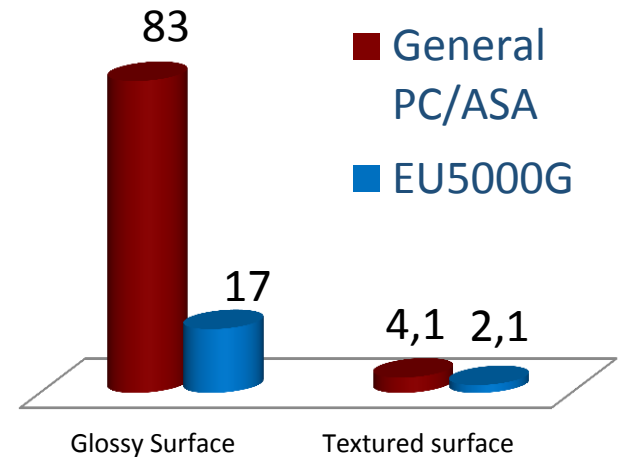


General PC/ASA
Surface Resistivity:
 10^{15} - 10^{16} Ω /sq



LUPOY EU5000A
Surface Resistivity:
 10^{12} - 10^{13} Ω /sq

Gloss

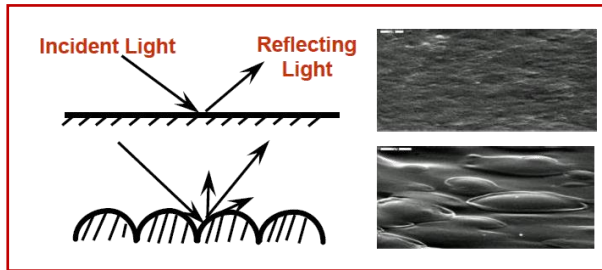


Non-paintable low gloss PC/ABS

LUPOY HI5000U and HI5007U

Features & benefits

Low gloss surface without grain

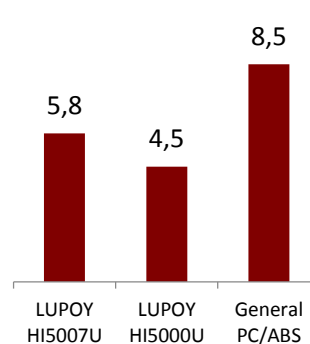


Applications

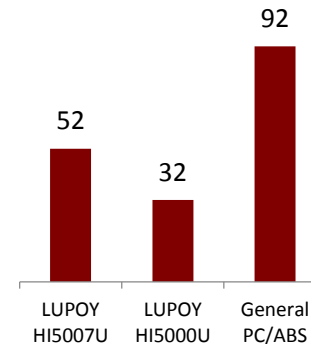
Various interior parts

Property	Test method	Unit	HI5000U	HI5007U
Density	ISO 1183	g/cm ³	1.11	1.12
Melt Flow Rate (260 °C, 5 Kg)		g/10min	10	15
Charpy Impact (Notched, 23 °C)	ISO 179	kJ/m ²	52	48
Charpy Impact (Notched, -30 °C)	ISO 179	MPa	33	26
Tensile strength	ISO 527	MPa	45	51
HDT (1.8 Mpa, Flatwise)	ISO 75	°C	93	97
			DBL5404 approved	High flow, heat resistant

Gloss (Grained, 60 °)



Gloss (General, 60 °)



Colour fastness

Test method	Results
VW PV1303	Grey scale 4-5 ΔE 0.3

EP materials

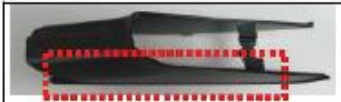
PC/ASA – LUPOY EU5000W

Features

- High flowability
- Excellent weatherability
- High heat resistance
- No need to paint

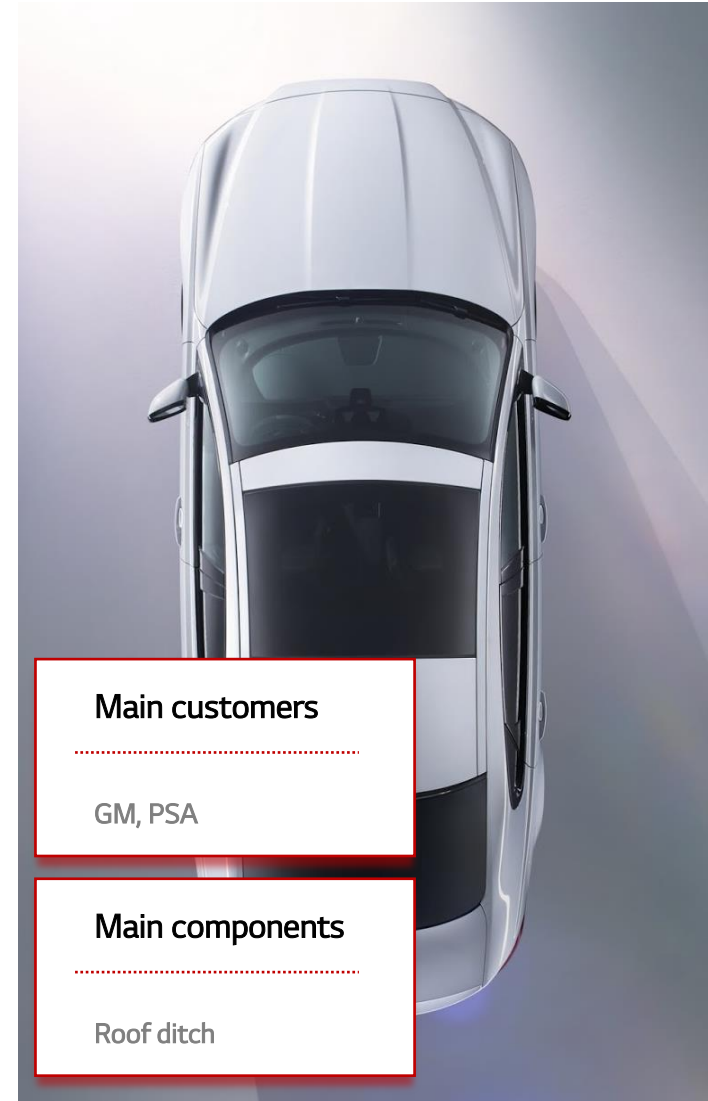
Typical properties

Property	Unit	Value
Density	g/cm ³	1.14
Melt Flow Rate (250 °C, 2.16 Kg)	g/10MIN	42
Tensile strength	Mpa	52
Charpy Impact (Notched)	kJ/m ²	47
VICAT	°C	108

	<table><tr><td>$\Delta L =$</td><td>0.85</td></tr><tr><td>$\Delta a =$</td><td>0.08</td></tr><tr><td>$\Delta b =$</td><td>0.04</td></tr><tr><td>$\Delta E =$</td><td>0.85</td></tr></table>	$\Delta L =$	0.85	$\Delta a =$	0.08	$\Delta b =$	0.04	$\Delta E =$	0.85
$\Delta L =$	0.85								
$\Delta a =$	0.08								
$\Delta b =$	0.04								
$\Delta E =$	0.85								
Designation Description: LUPOY EU5000W-black	Pas de variation significative de la teinte $\Delta E < 1$								
No d'échantillon(s) Number of test samples:	No significant variation of the colour $\Delta E < 1$								
Weatherability Test Result based on PSA norm									

Application

Non-painted exterior parts



Main customers

GM, PSA

Main components

Roof ditch

EP materials

FR PC/ASA – EU5000FS



EP materials - LUPOX



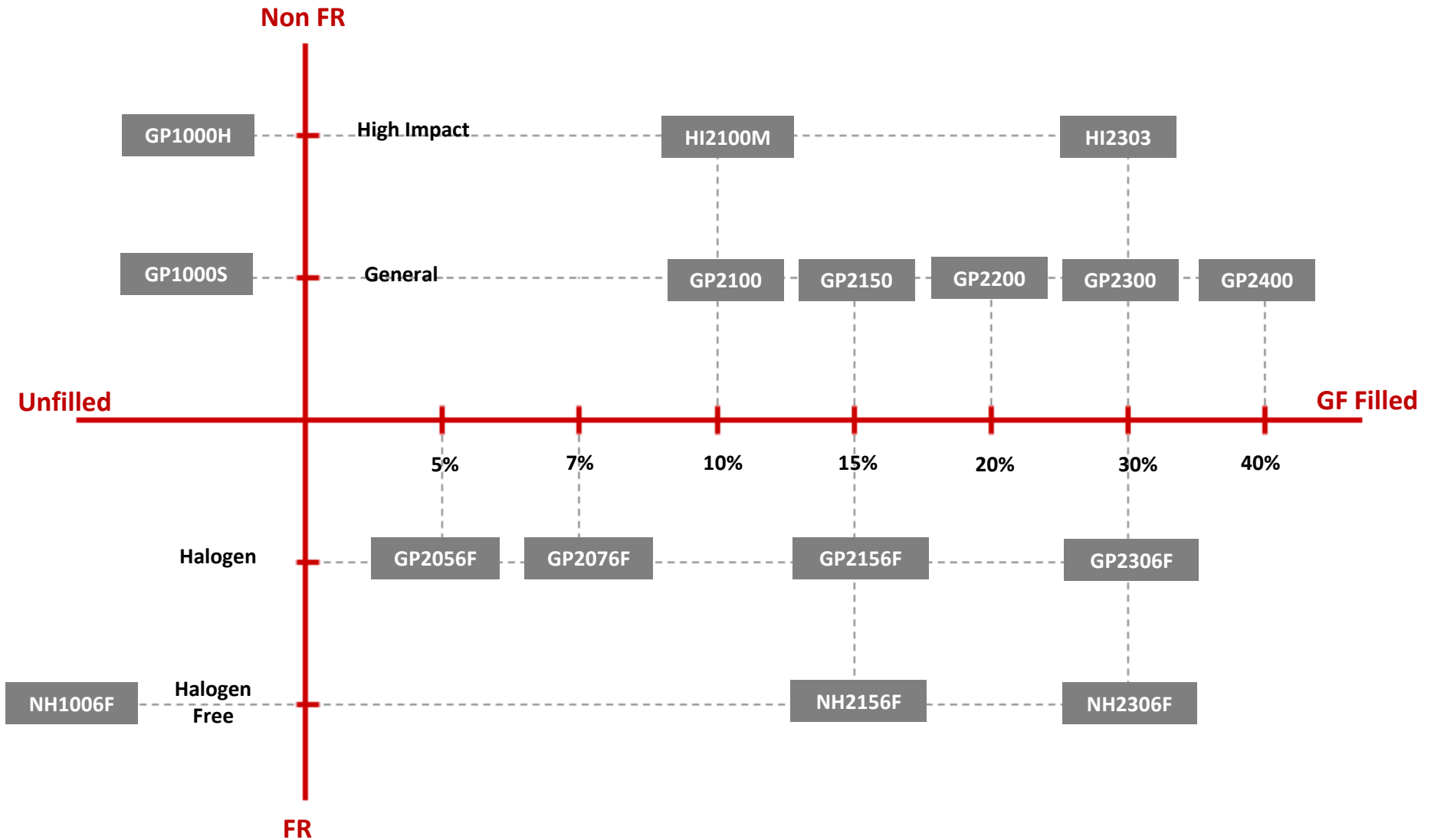
EP materials – LUPOX

Product portfolio

Description		General		Flame retardant	
LUPOX 1000 Series	Unreinforced	GP1000D(U)	GP1000DS(L)		
		GP1000W	GP1000S	GP1006FD	
		GP1000SB	HV1005S	HI1002F(A)	
		GP1000M	HV1010(C)	NH1006F	
		GP1000K(M)	GP1000H		
LUPOX 2000 Series	Glass Reinforced	GP2100		GP2056F	GP2076F
		GP2200	GP2150	GP2156F	GP2156FL
		GP2300G	GP2300	GP2156FM	GP2156FT
		GP2300M	GP2300R	NH2156F	GP2306FB
		HI2100M	HI2152	GP2306F	GP2306FG
		HI2303		GP2306FC	GP2306FS
				GP2306FI	NH2306F
		EE2306F			
LUPOX 3000 Series	Mineral Filled	SG3180S	SG3250(A)		
		SG3200	SG3250M		
LUPOX 4000 Series	Mineral & GF	ET4350		ET4356F	
LUPOX 5000 Series	Glass Reinforced	SG5150	SG5152		
		SG5200	SG5300		
		LW5303	SG5500		
		LW5402A	LW5300M		
		TE5000G	TE5000D	LW5102F	
		TE5000GU	TE5000GH	TE5006F(H)	LW5303F
		TE5000HZ	TE5000H		
		TE5000S	TE5000SP		
		TE5011	TE5000SZ		
		TE5100	TE5011M		
		LZ5300(B)			

EP materials – LUPOX

Product portfolio line-up for connectors



EP materials – LUPOX, LUMAX

PBT blends

	Blend	Material Characteristic	Material examples
LUPOX	PBT + PC	<ul style="list-style-type: none">• good chemical resistance• excellent impact resistance even at low temperatures• heat resistance• outstanding aesthetic	TE5000G TE5000H TE5011 TE7000 (PET/PC)
	PBT + PET	<ul style="list-style-type: none">• high strength at high temperatures• good stiffness and strength	SG5150 SG5300 SG5500
LUMAX	PBT + ASA	<ul style="list-style-type: none">• excellent mechanical properties• high dimensional stability• low density• good processability	EU5100 EU5200 EU5300

EP material – LUPOX

Electric & Electronic



Application

Connector

GP1000D, GP1000H
GP1000SB, GP1000W
GP2156F, GP2306F

Lamp component

GP2156FA
GP2306FC

Bobbin

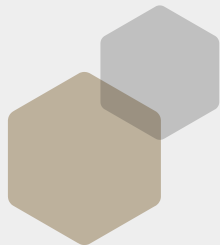
GP2306F

Requirements

- Excelent Electrical Property
- Improved Hydrolysis Resistance
- Low flammability
- Tracking Resistance

EP materials - LUPOX

Automotive



Application

<u>Connector</u>	GP2200T
<u>Bumper Back Beam</u>	TE5011
<u>DR Frame Garnish</u>	TE5000G
<u>Outside DR Handle</u>	TE5000H

Requirements

- Excellent Impact Resistance
- Superior Low Temp. Properties
- UV Stability
- Good Paintability

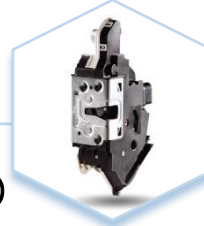
EP materials - LUPOX

Automotive



LUPOX GP1000D
Lamp bezel

Excellent surface
Low gas emission
Direct Metallisation



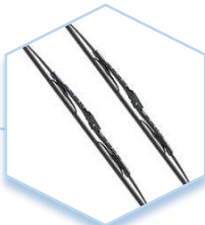
LUPOX SG5150(2)
Door latch

Good surface
High impact strength
Good mechanical strength



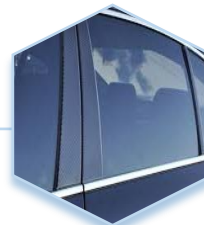
LUPOX GP2300M
Window motor gear cover

Good mechanical strength
Ultrasonic welding



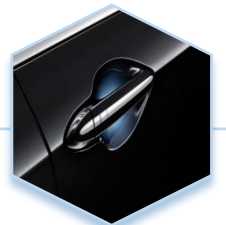
LUPOX SG5300A
Wiper blades

UV stabilised
Good surface



LUPOX TE5000G
LUPOX TE5000LZ
Door frame garnish

Excellent impact strength
Good surface
Good paintability
UV Stability



LUPOX TE5000S(Z)
LUPOX TE5000HZ
Door handle

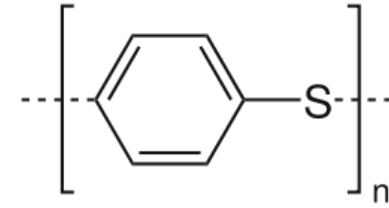
Excellent impact strength
Good surface
Good paintability

EP materials - LUSEP



EP materials - LUSEP

What is PPS?



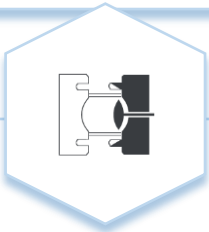
Features



Excellent heat resistance
Chemical resistance
Flame retardance



Low moisture absorption

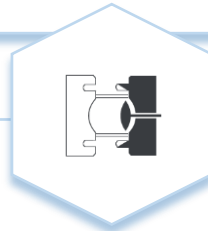


Excellent melt flow
Small amount of outgas

In case of glass fibre reinforced grades:



Superior mechanical strength
and stiffness



Great dimensional stability
low thermal expansion coefficient
low warpage

Speciality grades

- Low flash
- Thermal shock resistance
- Abrasion resistance
- Metal and epoxy adhesion



EP materials - LUSEP

Opportunity for Metal and Thermoset Replacement

Criteria	Unit	PPS/GF 40%	Al-Die Casting	Phenolic Resin	Merits of PPS	
Specific Gravity	-	1.66	2.71	1.76	Lower weight	
Tensile Strength	MPa	180	240	70	Higher than Phenol	
Flexural Strength	MPa	260	-	140	Higher than Phenol	
Impact Strength	-	High	High	Low	Higher than Phenol	
High Temp. Performance	-	Good	Good	Annealing required	Better than Phenol	
Chemical Resistance	-	Excellent	Painting required for anti-corroison	Excellent	Painting for anti-corrosion unnecessary	
Design Freedom		High	Low	Low	Higher than Phenol	
Surface Finish Secondary Processing	-	Good Unnecessary	Trimming & machining required	Good Trimming required	Good Unnecessary	
Mold ing	Molding Time	Sec	20 ~ 25	10 ~ 60	30 ~ 40	Shorter than Phenol
	Defect Rate	-	Low	High	High	Low
	Mold Life	Shot	0.5 ~ 1 X 10 ⁶	0.1 X 10 ⁶	0.3 ~ 0.5 X 10 ⁶	2-5 times than ALDC
	Recycle	-	Possible	Regrinding impossible	Impossible	Possible

* PPS has advantages of lower weight and manufacturing cost than aluminum and higher productivity and recyclability compared with Phenolic resin.

EP materials - LUSEP

Grade list

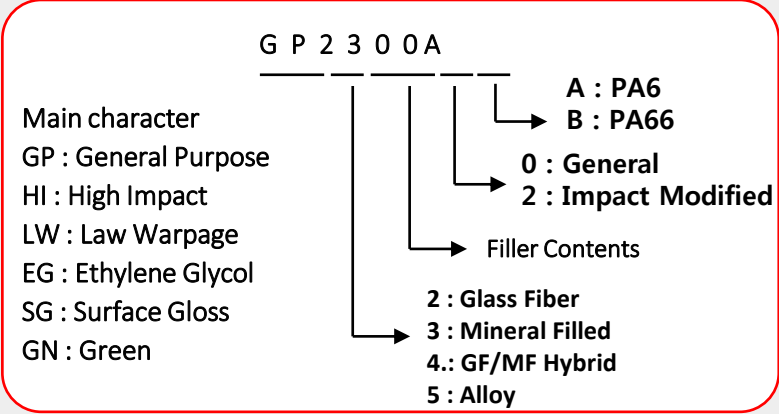
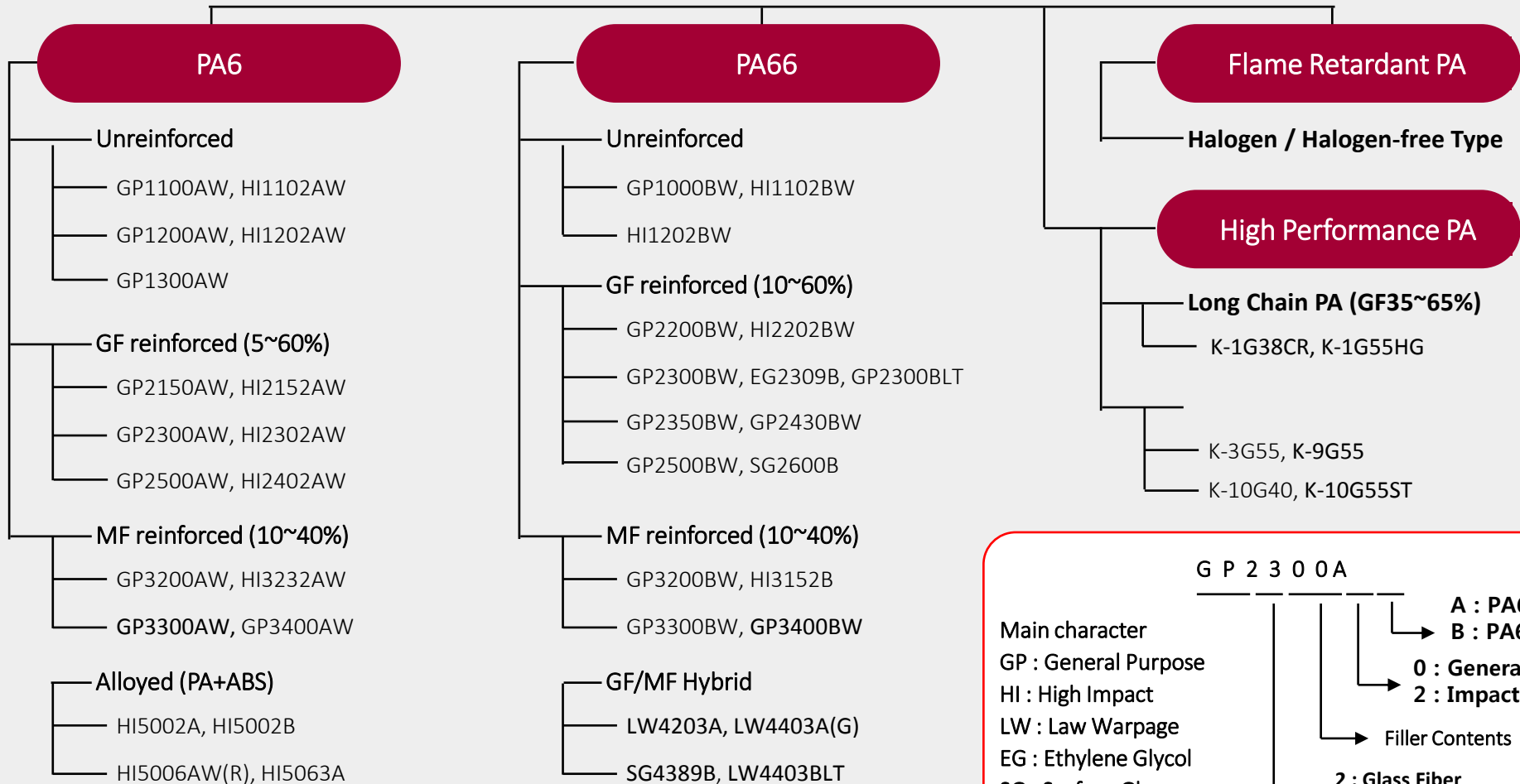
Standard	High impact	Low flash	Fast cycle	Metal adhesion	Low friction and wear resistance	Epoxy adhesion	Highly filled
GF30% Linear GP2300 Crosslinked GP2300C	GF20% Toughened HI2202	GF40% Low flash, high flow LF2400C	GF40% Fast cycle time FC5400	GF20% Metal adhesion MA2200	GF30% Low F&W FW2300	GF + MF 55% Epoxy adhesion EA4550	GF + MF 55% Standard GP4550C
GF40% Linear GP2400 Crosslinked GP2400C	GF30% Toughened HI2302			GF40% Metal adhesion MA2400	GF40% Low F&W FW2400		GF + MF 60% Standard GP4600M
GF40% Linear, low chlorine content GP2400	GF40% Toughened HI2402						GF + MF 65% Standard GP4650
							GF + MF 70% Standard GP4700

EP materials - LUMID



EP material – LUMID

PA Compound



EP material – LUMID

PA6

Series	Grade	Filler contents (%)	Features	Typical uses
1000series Unreinforced	GP1100AW GP1200AW GP1300AW	- - -	Low viscosity, Injection molding Middle viscosity, Injection molding High viscosity, Extrusion	Internal Door Handle Body Fastener, Clip, Wire Coating
	HI1102AW HI1202AW	- -	Impact resistance High impact, Low temperature properties	Automotive parts (Seat Belt) Sports & Leisure (In Line Skate)
2000series GF reinforced 5 ~ 60%	GP2150AW GP2300AW GP2330AW GP2500A	15 30 33 50	High rigidity, Heat resistance	Reservoir Tank Column Switch, Electric Part Air Intake Manifold(AIM) Side Mirror Base Plate
	HI2152AW HI2302AW HI2402AW	15 30 40	High rigidity, Heat resistance, Impact resistance	Door Handle, Electric Part Air Bag Mounting Plate
3000series MF reinforced 10 ~ 40%	GP3200AW GP3400AW	20 40	Heat resistance, Dimensional stability, Low warpage	Engine Cover Lid Door Filler
	HI3232A	23	Impact resistance, Dimensional stability	Wheel Cover
4000series GF/MF reinforced	LW4253A LW4303AW LW4409AK	25 30 40	High rigidity, Heat resistance, Low warpage	Column Switch, Engine Cover Switch Body & Connector Roof Rack
5000series polymer alloy	HI5006A HI5063A	- 6	Low water absorption, High Impact, Dimensional stability	Automotive parts & Industrial material

EP material – LUMID

PA66

Series	Grade	Filler contents (%)	Features	Typical uses
1000series Unreinforced	GP1000B	-	Low viscosity, Injection molding	Connector & Knob Bobbin, Cable Tie
	HI1102BW HI1202BW	- -	Impact resistance High impact, Low temperature properties	Band Cable, Seat Belt, Ball Seat, Wheel Cover, Motor Housing
2000series GF reinforced 10 ~ 60%	GP2200BW GP2300BW EG2309B GP2350B GP2500B	20 30 30 35 50	High rigidity, Heat resistance	Connectors, Switch, Gear Shift Part. Radiator Tank Cylinder Head Cover(CHC)
	HI2202BW	20	High rigidity, Heat resistance, Impact resistance	Pump Housing
3000series MF reinforced 10 ~ 40%	GP3200B GP3300BW HI3152B	20 30	Heat resistance, Dimensional stability, Low warpage	HEV Battery Pack Housing Fuse Box
4000series GF/MF reinforced	LW4383B LW4403B	38 40	High rigidity, Heat resistance, Low warpage	Engine Cover Cylinder Head Cover(CHC)

EP material – LUMID

Flame Retardant PA

	LUMID Grade	UL94	Flame retardant	Remarks
PA6	GN1001AF	V-2@1/32"	Non-halogen	Nylon6 / non-reinforced
	GP2101AF	V-0@1/32"	Halogen	Nylon6 / Glass fiber 10%
	GP2251AF	V-0@1/32"	Halogen	Nylon6 / Glass fiber 25%
	GP2259AFL	V-2@1/32"	Halogen	Nylon6 / Glass fiber 25%
	GP2301AF	V-0@1/32"	Halogen	Nylon6 / Glass fiber 30%
	GN2301AF	V-0@1/32"	Non-halogen	Nylon6 / Glass fiber 30%
PA66	GN1001BF	V-0@1/32"	Non-halogen	Nylon66 / non-reinforced
	GP2101BF	V-0@1/32"	Halogen	Nylon66 / Glass fiber 10%
	GP2151BF	V-0@1/32"	Halogen	Nylon66 / Glass fiber 15%
	GP2251BF(H)	V-0@1/32"	Halogen	Nylon66 / Glass fiber 25%
	GN2251BF	V-0@1/32"	Non-halogen	Nylon66 / Glass fiber 25%
	GP2301BF(H)	V-0@1/32"	Halogen	Nylon66 / Glass fiber 30%

EP material – LUMID

Application – Automotive Under Hood

Cylinder Head Cover

PA66+GF/MF
(LUMID LW4403B, GP2350B)

Engine Cover

PA+GF/MF
(LUMID LW4203A, 4383B)

Fuel Filler Neck

PA6
(LUMID HI5001AH)

Corrugate Tube

PA6
(LUMID GN1301AFE)

Battery Cell Housing

PA66+MF
(LUMID GP3300BW)

Separator, Cartridge

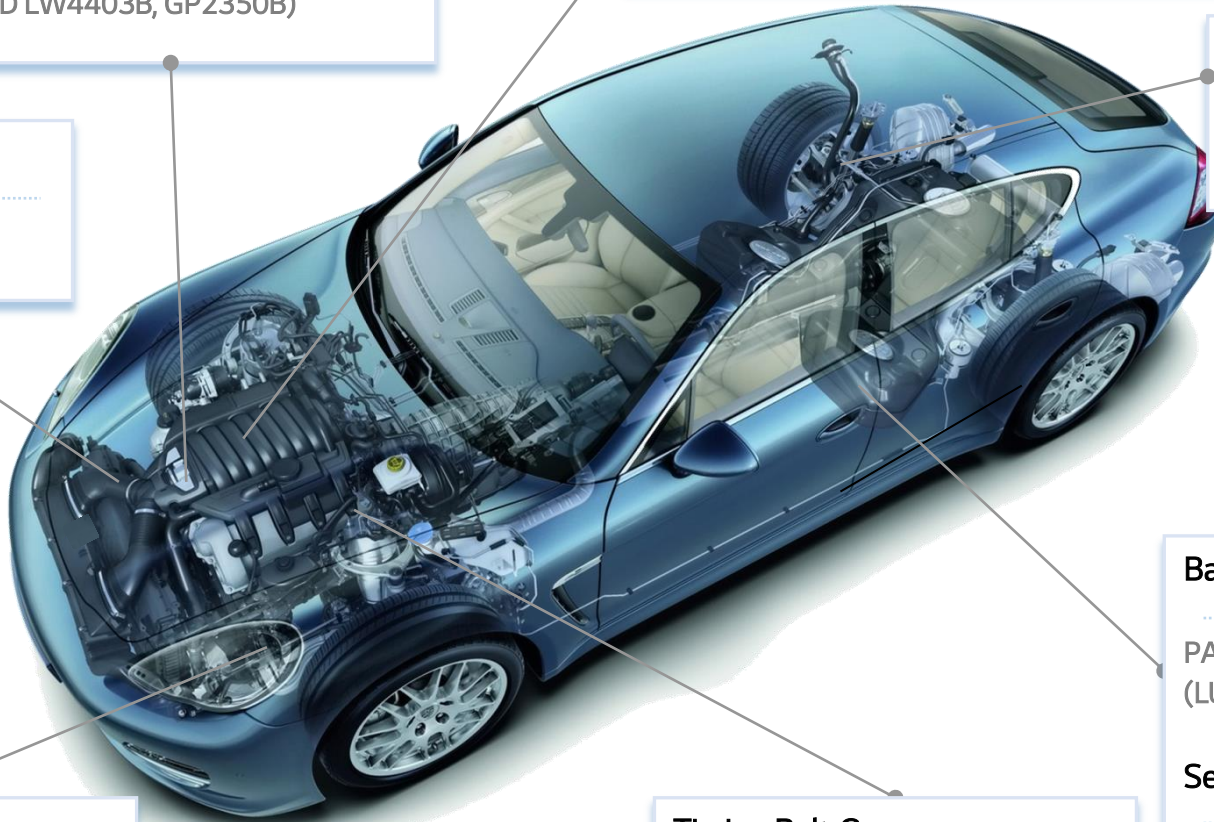
PA66+GF
(LUMID GP2300B)

FEM Carrier

PA6+GF
(LUMID GP2300A)

Timing Belt Cover

PA+GF/MF
(LUMID LW4409A)



EP material – LUMID

Application – HVAC System



Air Intake Manifold

PA6+GF
(LUMID GP2330AW)

Fan & Shroud

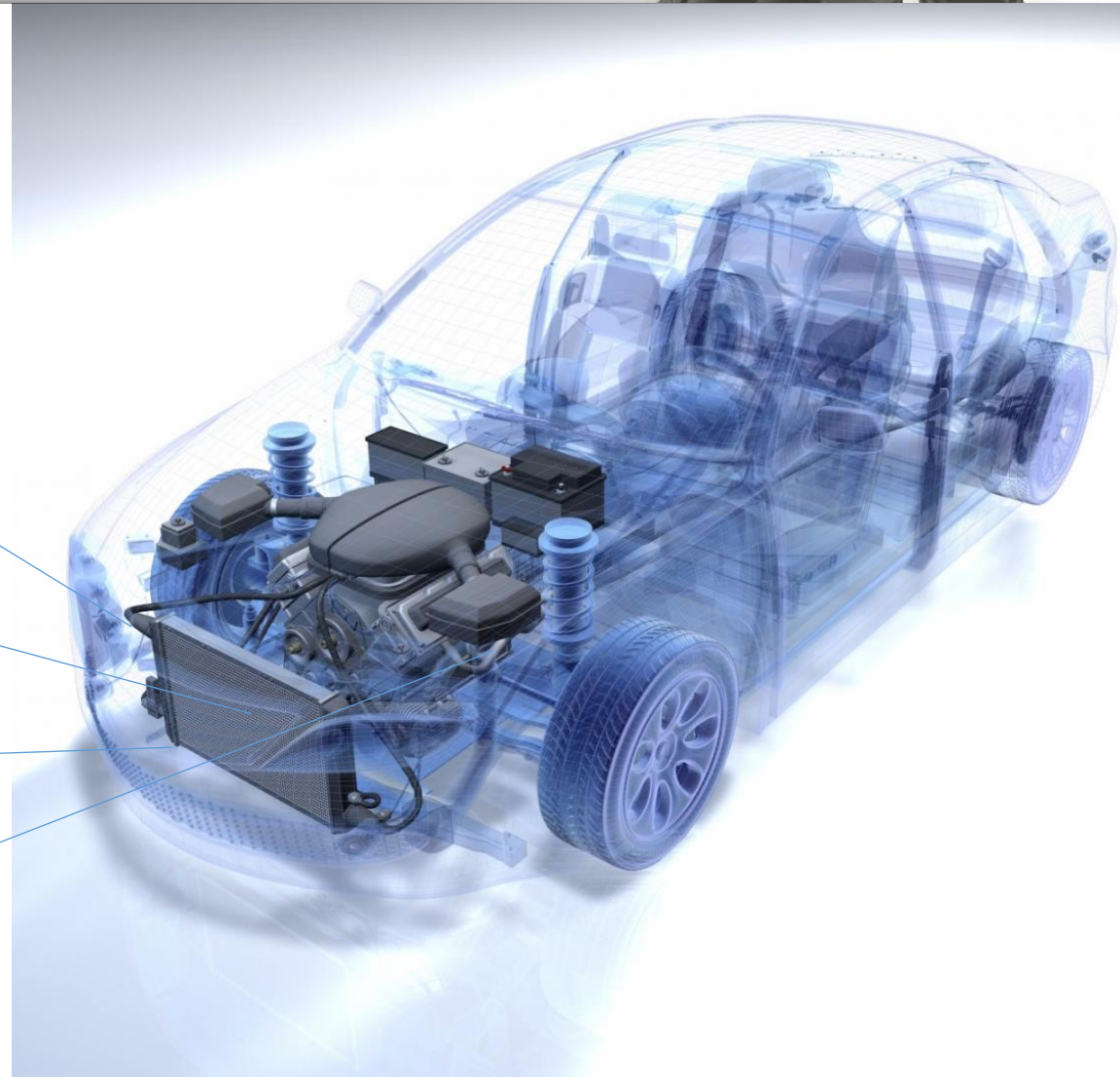
PA66+GF
(LUMID SG4389B)

Radiator Tank

PA66+GF
(LUMID EG2309B)

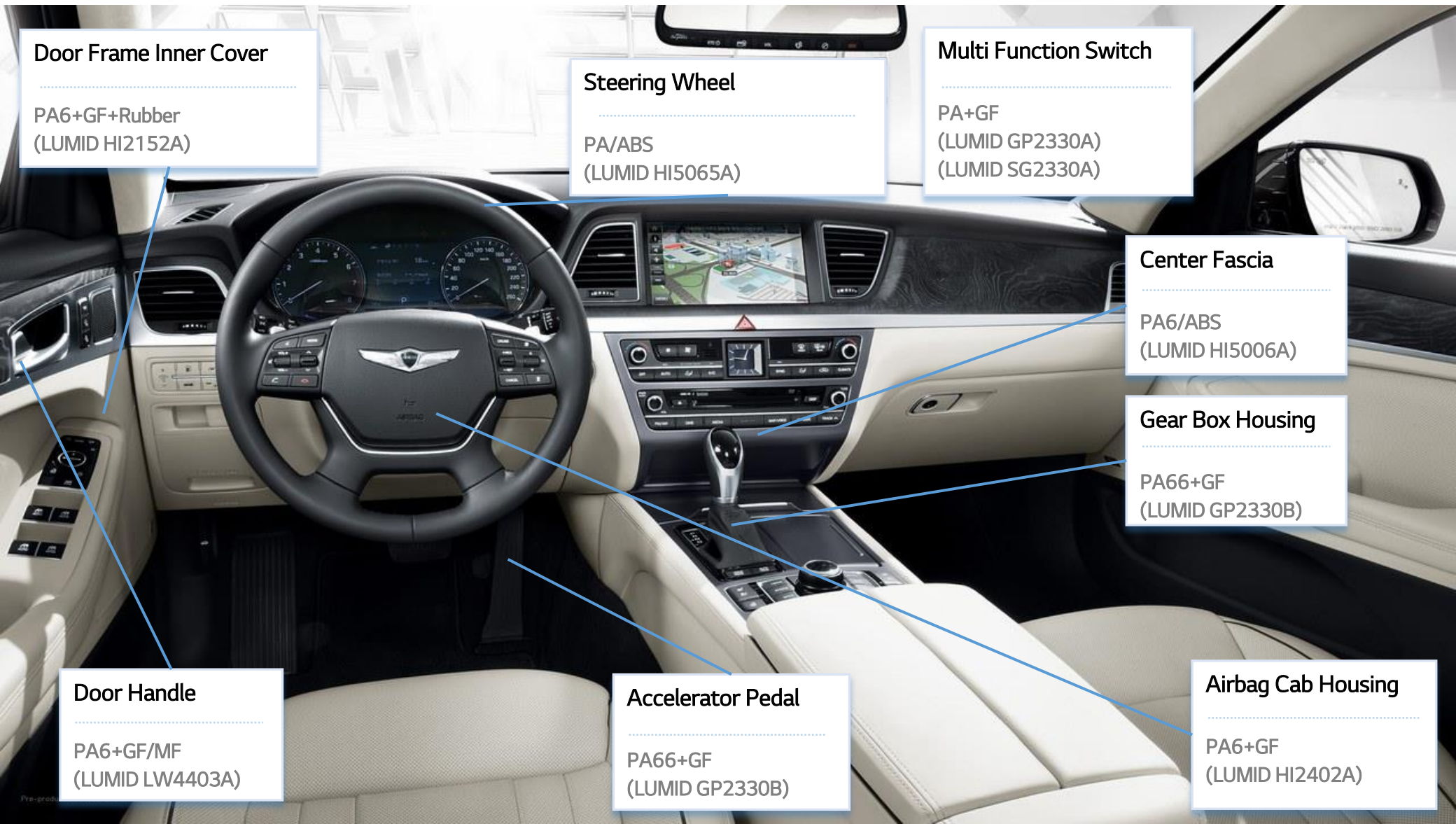
Reservoir Tank

PA6+GF
(LUMID GP2150AW)



EP material – LUMID

Application – Automotive Interior



Door Frame Inner Cover

PA6+GF+Rubber
(LUMID HI2152A)

Steering Wheel

PA/ABS
(LUMID HI5065A)

Multi Function Switch

PA+GF
(LUMID GP2330A)
(LUMID SG2330A)

Center Fascia

PA6/ABS
(LUMID HI5006A)

Gear Box Housing

PA66+GF
(LUMID GP2330B)

Door Handle

PA6+GF/MF
(LUMID LW4403A)

Accelerator Pedal

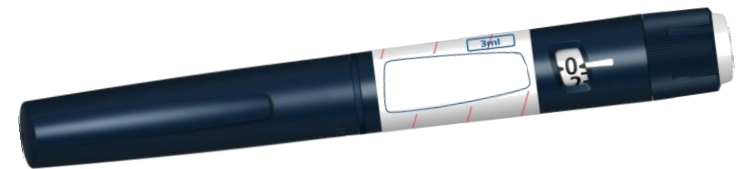
PA66+GF
(LUMID GP2330B)

Airbag Cab Housing

PA6+GF
(LUMID HI2402A)

FDA approved grades

PC & PC/ABS	PA	PBT	PPS
Lupoy HR5007A	Lumid FD2150BW	Lupox HV1010	Lusep GP2400
Lupoy HR5007AE	Lumid GP2300AW	Lupox HV1010C	
Lupoy HR5007AS	Lumid GP2300BW	Lupox GP2300	
	Lumid GP3300AW		





Thank you

 **LG Chem**


LG Chem Poland Sp. z o.o.