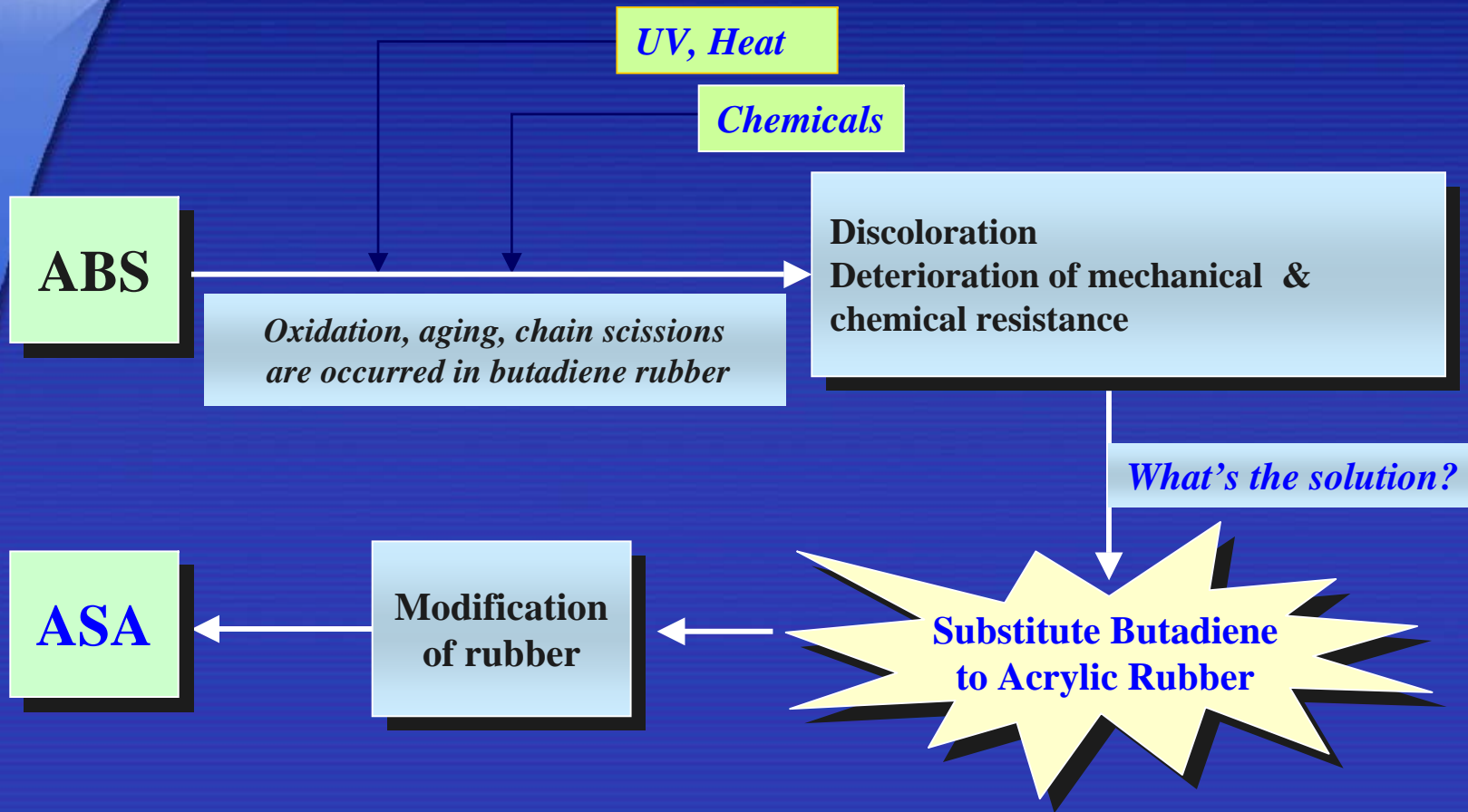


Samsung STAREX ASA

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What is ASA material ?

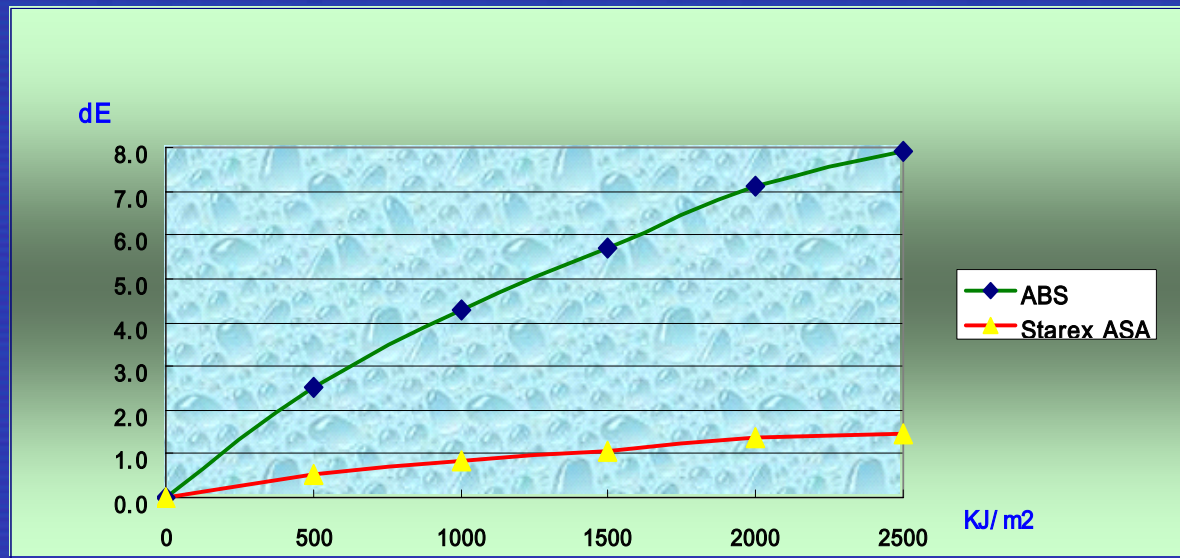
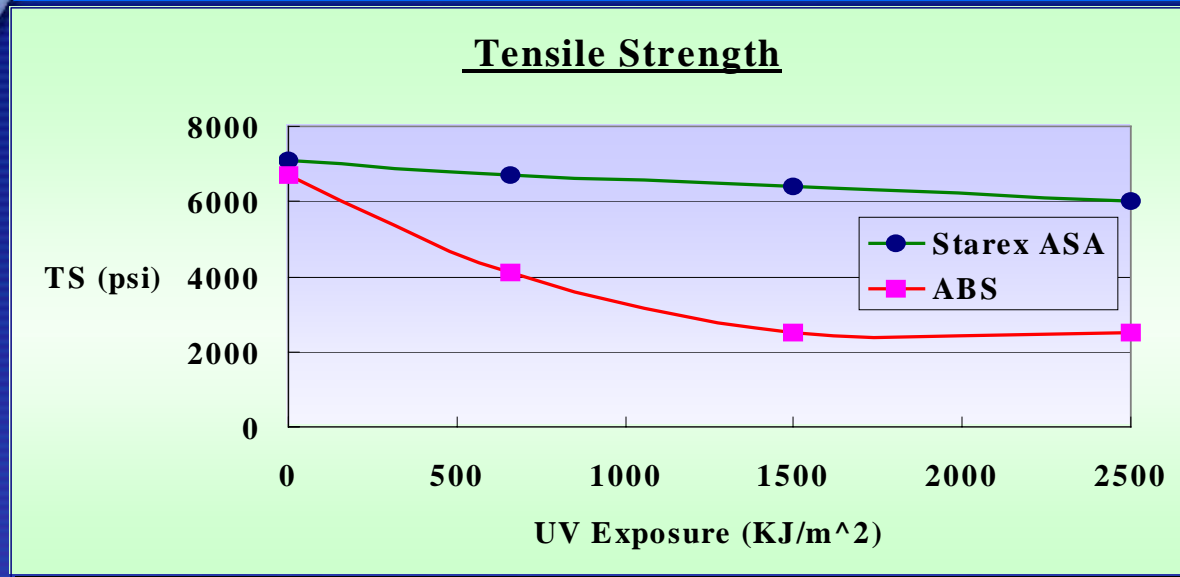


The top-left corner of the slide features a blue-tinted image of a desk with a pen and a notepad. The Samsung logo is faintly visible in the background of this image.

Feature of Starex ASA

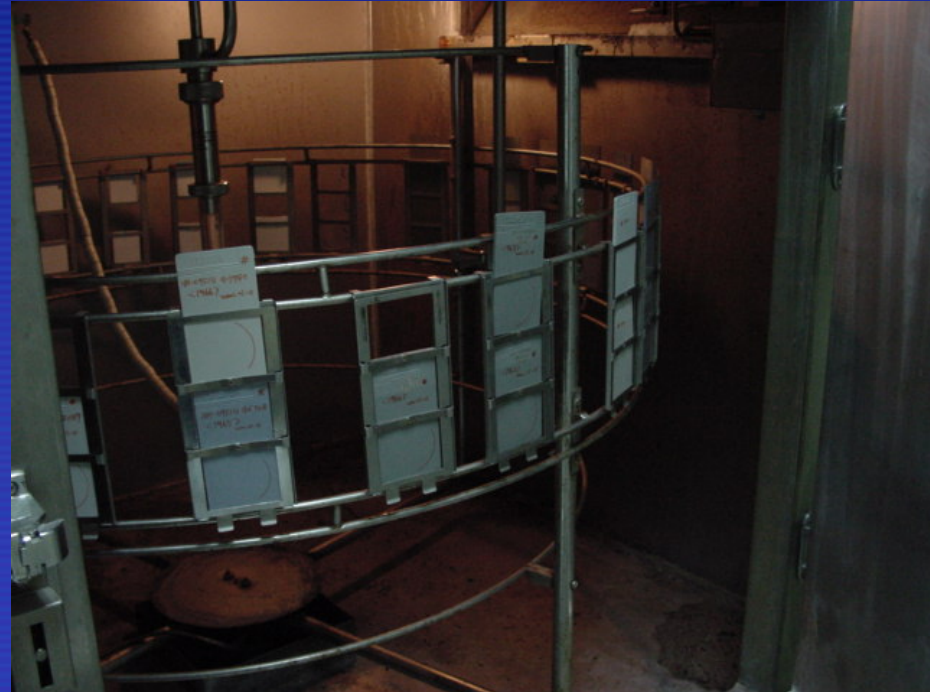
- ▶ **Excellent Weather Resistance**
- ▶ **Excellent Colorability**
- ▶ **Good Balance of Mechanical Properties**

Excellent Weather Resistance



Excellent Weather Resistance

Xenon W-O-M



- SAE J 1960 – for Automotive Exterior
- SAE J 1885 – Xenon for Automotive Interior
- ASTM D 4459 – Accelerated Light Fastness for - Indoor Applications
- UL 746C F1 – F1 Rating Test

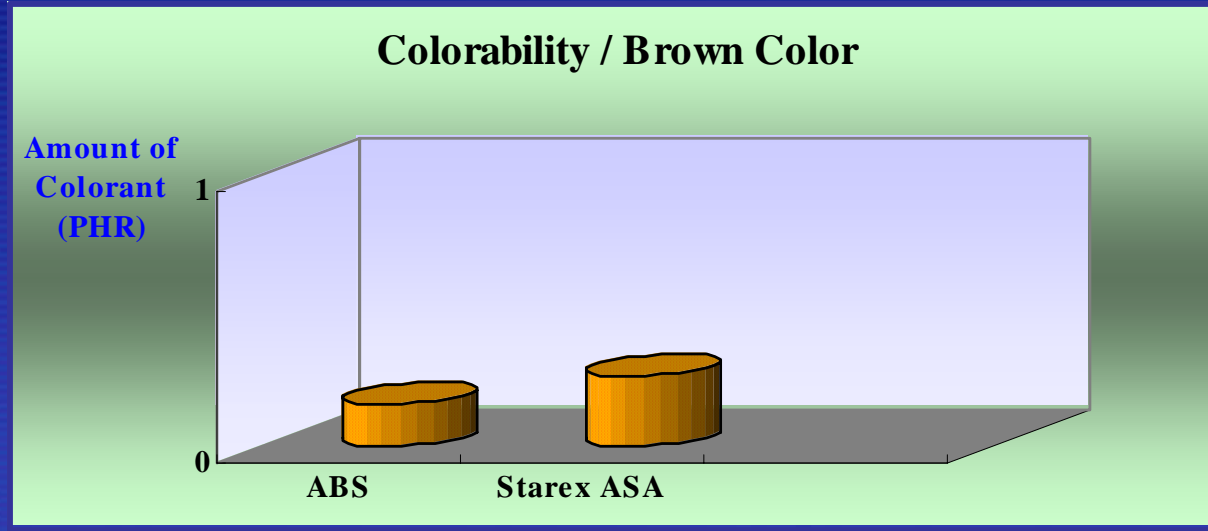
Excellent Weather Resistance

UV Test Method

		SAE J 1960	SAE J 1885	ASTM G155 UL 746C	ASTM D 4459	
Optical Filter	Inner	Quartz	Quartz	Boro Silicate	Boro Silicate	
	Outer	Boro Silicate	Boro Silicate	Boro Silicate	Sodalime	
Irradiance (at 340nm)		0.55 W/m ²	0.55 W/m ²	0.35 W/m ²	0.30 W/M ²	
Black Panel Temp	Light	70±2°C	89±3°C	63±3°C	55±3°C	
	Dark	38±2°C	38±2°C	None	None	
Relative Humidity	Light	50±5%	50±5%	55±5%	55±5%	
	Dark	95±5%	95±5%	None	None	
Time	Light	40m Light → 20m L./S. → 60m Light → 60m Dark	3.8 hr	102m Light → 18m L./S.	Only Light	
	Dark		1.0 hr			
Water Spray	Light		None		None	None
	Dark		None			None

Excellent Colorability

▶ ABS vs Starex ASA



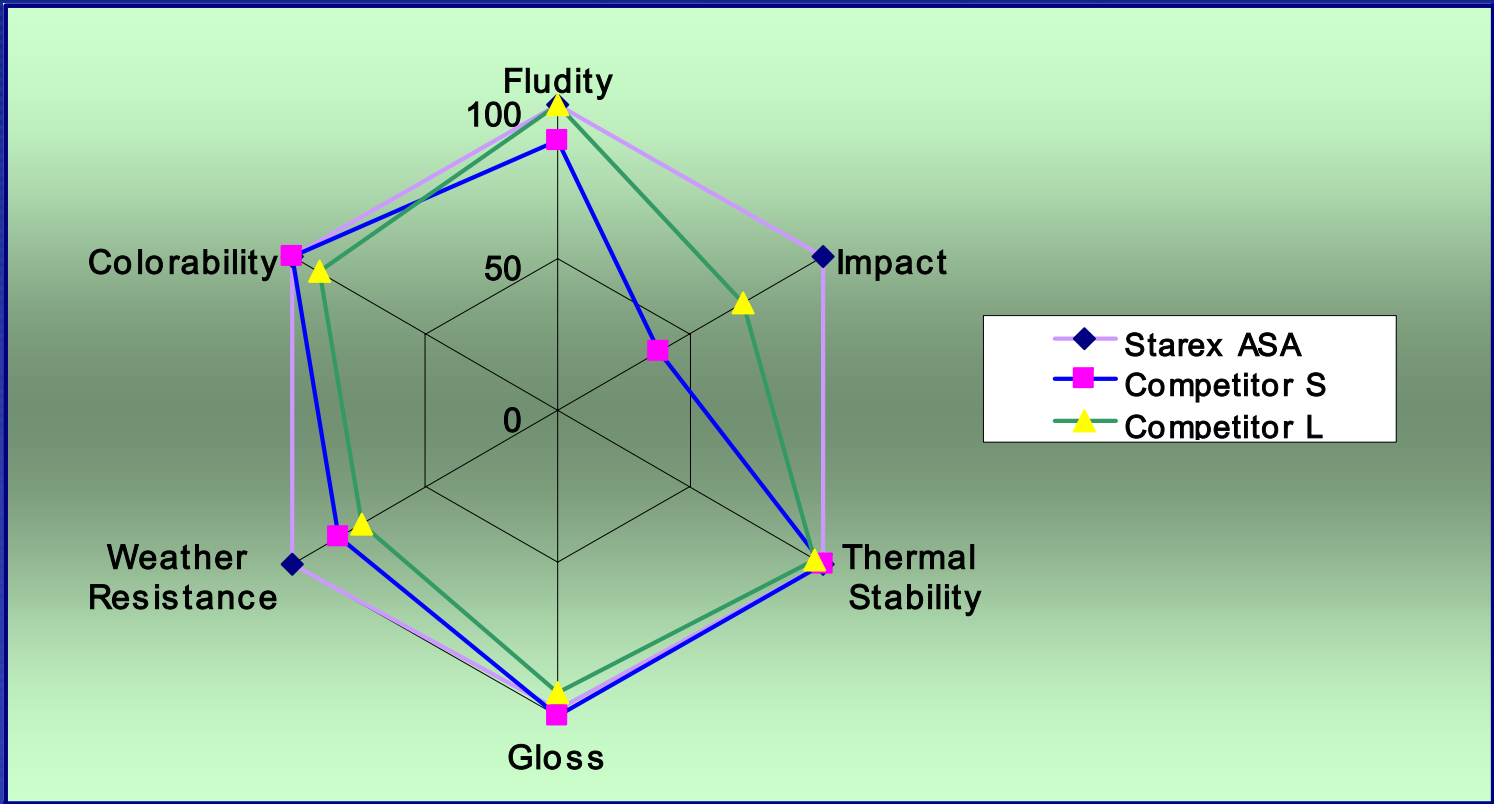
▶ The Starex ASA & General ABS have almost same colorability.

☞ Effective Cost

☞ Excellent Weather Resistance

Good Balance of Mechanical Properties

Starex ASA vs Competitor's ASA



☞ Starex ASA shows the good balance of Properties

Nomenclature of Samsung ASA

WR- 9 [Color Code] / Color Code

✓ Additional Function of grade
- G : Low gloss

✓ Impact Characteristic of grade
- 10 : General impact Grade
- 20, 30, 50 : High impact Grade

✓ Characteristic of grade
- 1 : General purpose
- 3 : heat resistance
- 7 : Extrusion for Sheet

✓ Classification of grade
- 9 : ASA

✓ WR : Weather Resistance

WR-9140

WR-9370

WR-9750G

Grade Line-Up of Samsung ASA

Samsung ASA

General Purpose Grade

Heat Resistance

Extrusion

High FLOW	WR-9100
High Flow & High impact	WR-9120 WR-9120G WR-9130
Super High Impact & Extrusion possibility	WR-9140 WR-9160

Medium Heat Resistance	WR-9320 WR-9330I
Heat resistance	WR-9340 WR-9350
Super High Resistance	WR-9360 WR-9370

High Flow	WR-9700
Medium Flow	WR-9730
Low Flow	WR-9750H WR-9750G

Equivalent Grade to Other company

Glass	Grade	Other Company Product				
		MRC	HITACHI	BASF	LANXESS	LG
General Purpose	WR-9100	S311				
	WR-9120	S210	V6700 V6701MD	757 R 757 G		LI-911 LI-921
	WR-9130	S310		777 K		LI-912
	WR-9140			796 M	811 813	
	WR-9160	S710			797 S	LI-913
Extrusion	WR-9730					
	WR-9750H			797 SE	601	LI-923
	WR-9750G			776 SE		LI-923B
Heat Resistance	WR-9320					
	WR-9330I		V6815	778 T		LI-941
	WR-9340			778 T		LI-942
	WR-9350					
	WR-9360	TW20				
	WR-9370	T-120				

Applications of WR-ASA

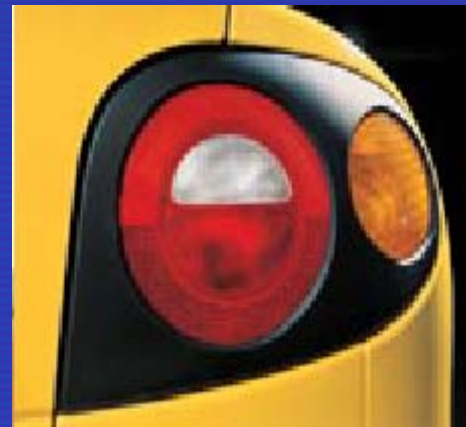
► Construction



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Applications of WR-ASA

▶Automotive & Agriculture



Applications of WR-ASA

► Housing of Electronics



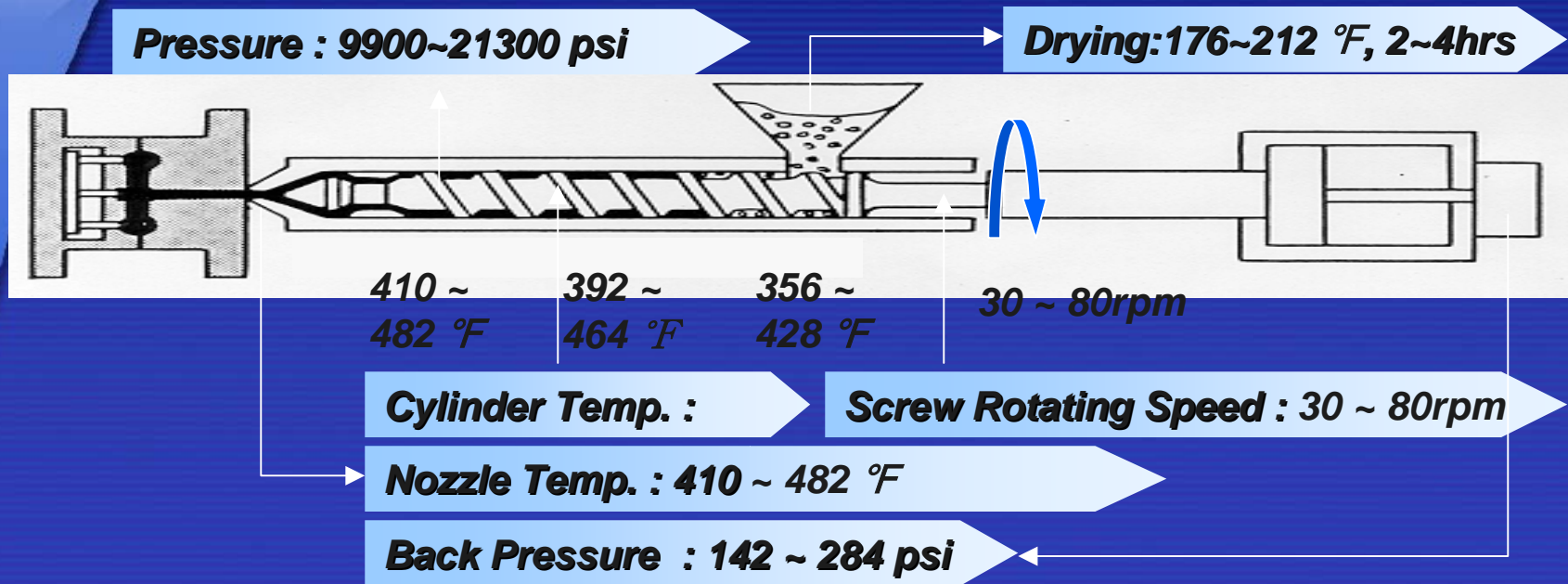
Physical Properties

Classification	Properties	Mechanical Properties					Physical Properties			Thermal Properties	
		TS	FS	FM	Izod	RHD	Sp. Gr	MFR		VST	HDT
	Unit	psi	psi		ft-lbf/in	-	-	g/10min		deg.F	deg.F
	Method	D638	D790		D256	D785	D792	D1238	ISO1133	ISO 306	D648
Grade	5mm/min	2.8mm/min		1/8"	R-Scale	NP	230°C 3.8kg	220°C 10kg	5kg 50°C/hr	1/4 " 264psi	
General Purpose	WR-9100	6,400	9,100	287,000	5.0	104	1.06	6.9	26	207	187
	WR-9120	6,250	8,800	277,000	6.0	102	1.06	4.0	20	205	185
	WR-9130	6,250	8,800	270,000	6.8	101	1.06	2.0	11	207	187
	WR-9140	6,100	8,500	262,000	9.2	100	1.06	0.9	5	208	187
	WR-9160	5,400	7,400	220,000	11.0	91	1.05	0.5	5	198	183
Extrusion	WR-9730	6,250	8,800	270,000	9.7	101	1.06	1.8	5	208	189
	WR-9750	5,700	7,800	241,000	11.0	95	1.06	0.3	3	203	187
	WR-9750G	6,400	9,200	278,000	9.0	95	1.07	0.3	3	203	189
Heat Resistance	WR-9310	7,100	9,200	298,000	3.7	104	1.08	1.9	10	208	190
	WR-9320	6,700	9,500	298,000	5.5	103	1.07	1.8	8	216	199
	WR-9330I	6,400	9,200	297,000	6.4	103	1.07	1.2	6	217	201
	WR-9340	6,550	9,650	298,000	5.5	104	1.07	1.1	5	221	207
	WR-9350	6,550	9,400	291,000	4.8	104	1.07	1.0	4	223	208
	WR-9360	6,250	8,950	277,000	4.0	104	1.08	0.7	3	226	210
	WR-9370	6,250	8,950	277,000	3.7	106	1.08	0.7	3	232	212

Processing Conditions

Grade		WR-9100 WR-9120 WR-9130	WR-9140, WR-9160 WR-9730, WR-9750 WR-9750G	WR-9320, WR-9330I WR-9340, WR-9350 WR-9360, WR-9370
Cylinder Temperature	H1	180 ~ 200°C 356 ~ 392°F	190 ~ 210°C 374 ~ 410°F	200 ~ 220°C 392 ~ 428°F
	H2	200 ~ 220°C 392 ~ 428°F	210 ~ 230°C 410 ~ 446°F	220 ~ 240°C 428 ~ 464°F
	H3	210 ~ 230°C 410 ~ 446°F	220 ~ 240°C 428 ~ 464°F	230 ~ 250°C 446 ~ 482°F
	Nozzle	210 ~ 230°C 410 ~ 446°F	220 ~ 240°C 428 ~ 464°F	230 ~ 250°C 446 ~ 482°F
Mold Temperature		40 ~ 80°C (104 ~ 176°F)		
Drying Temperature		80°C (176°F)		90 ~ 100°C (194 ~ 212°F)
Drying Time		2 ~ 4 hrs		
Injection Pressure		700 ~ 1,500 kgf/cm ² (9,900 ~ 21,300 psi)		
Back Pressure		10 ~ 20 kgf/cm ² (142 ~ 284 psi)		
Screw Rotating Speed		30 ~ 80 RPM		

Processing Conditions



Classification by Processing Temp.

- Low Range; WR-9100, WR-9120, WR-9130
- Middle Range; WR-9140, WR-9150, WR-9160, WR-9730, WR-9750, WR-9750G
- High Range; WR-9320, WR-9330I, WR-9340, WR-9350, WR-9360, WR-9370