

SOLPRENE 1106X | 1322 | 1430

SSBR grades for toughened Styrenic Plastics



Dynasol Group produces tapered SSBR grades which include Solprene® 1106X, Solprene® 1322, and Solprene® 1430. They are used as a key raw material for the production of styrenic plastics such as mass polymerized ABS and High Impact Polystyrene (HIPS). A description of main properties are shown in table 1.

Table 1 - SSBR Grade Properties

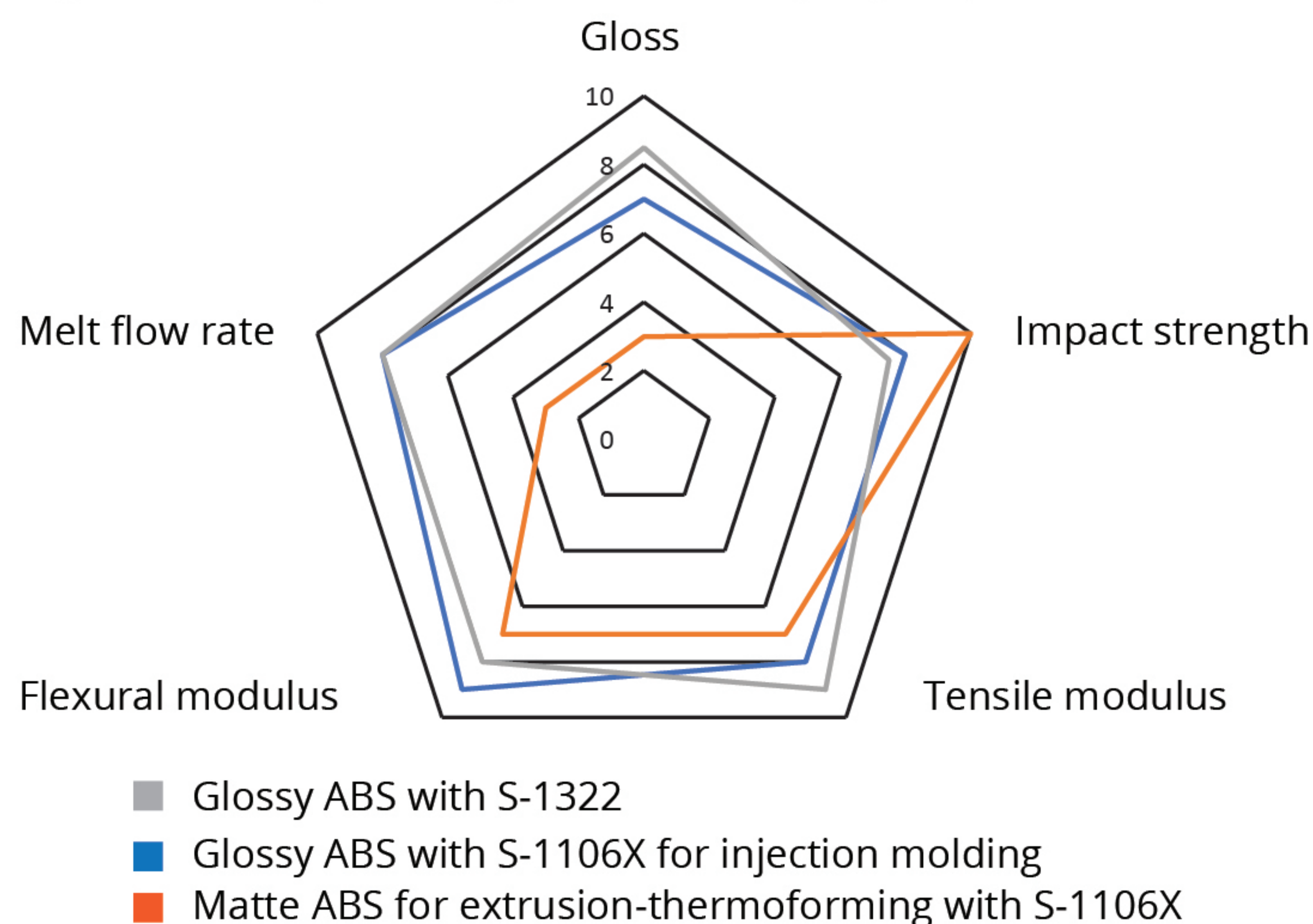
SSBR Grade	Solprene 1106X	Solprene 1322	Solprene 1430
Total styrene, wt.%	10	30	40
Block styrene, wt.%	6	22	30
SSV, cP	35	25	42

Solprene® 1106X is a versatile grade for ABS. Depending on ABS formulation and polymerization conditions, it can render extrusion-thermoforming ABS with high impact strength and a matte or glossy finish. This is used for automobile dashboards, interior panels and interior trim, or injection-molding ABS with medium-high impact strength. Glossy finishes can be made which are suitable for toys, consumer electronics and appliances.

Solprene® 1322 provides a higher gloss to ABS plastic and provides competitive, mechanical, and flow property balance. Additionally, due to its styrene block it is free of cold-flow this makes it easier for handling and use.

Figure 1 shows the properties of various ABS grades obtained with Solprene® 1106X or Solprene® 1322. Glossy ABS of high modulus can be tailored with a slight compromise of impact strength with both SSBR grades. Matte ABS grades with high impact strength are capable to be produced with Solprene 1106X, with a minor reduction of modulus. Melt flow rate can be adjusted independently, spanning from extrusion-thermoforming or injection molding grades.

Figure 1 - Properties of ABS with varying Solprene® SSBR



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Solprene® 1430 and Solprene® 1322 are advantageous for the formulation of high gloss HIPS. In combination with BR to counterbalance the compromise of impact strength.

As shown in Figure 2, Solprene® 1430 develops very high gloss in HIPS, with minor compromise of impact strength, when combined with BR of low SSV (45 cP), while Solprene® 1322 gets adequate balance of gloss and impact strength when combined with BR of medium SSV (90 cP). Melt flow rate can be independently adjusted as to produce HIPS grades appropriate for the manufacture of appliance housings, refrigerator interiors, food trays, etc.

Figure 2 - Properties of HIPS with varying Solprene® SSB

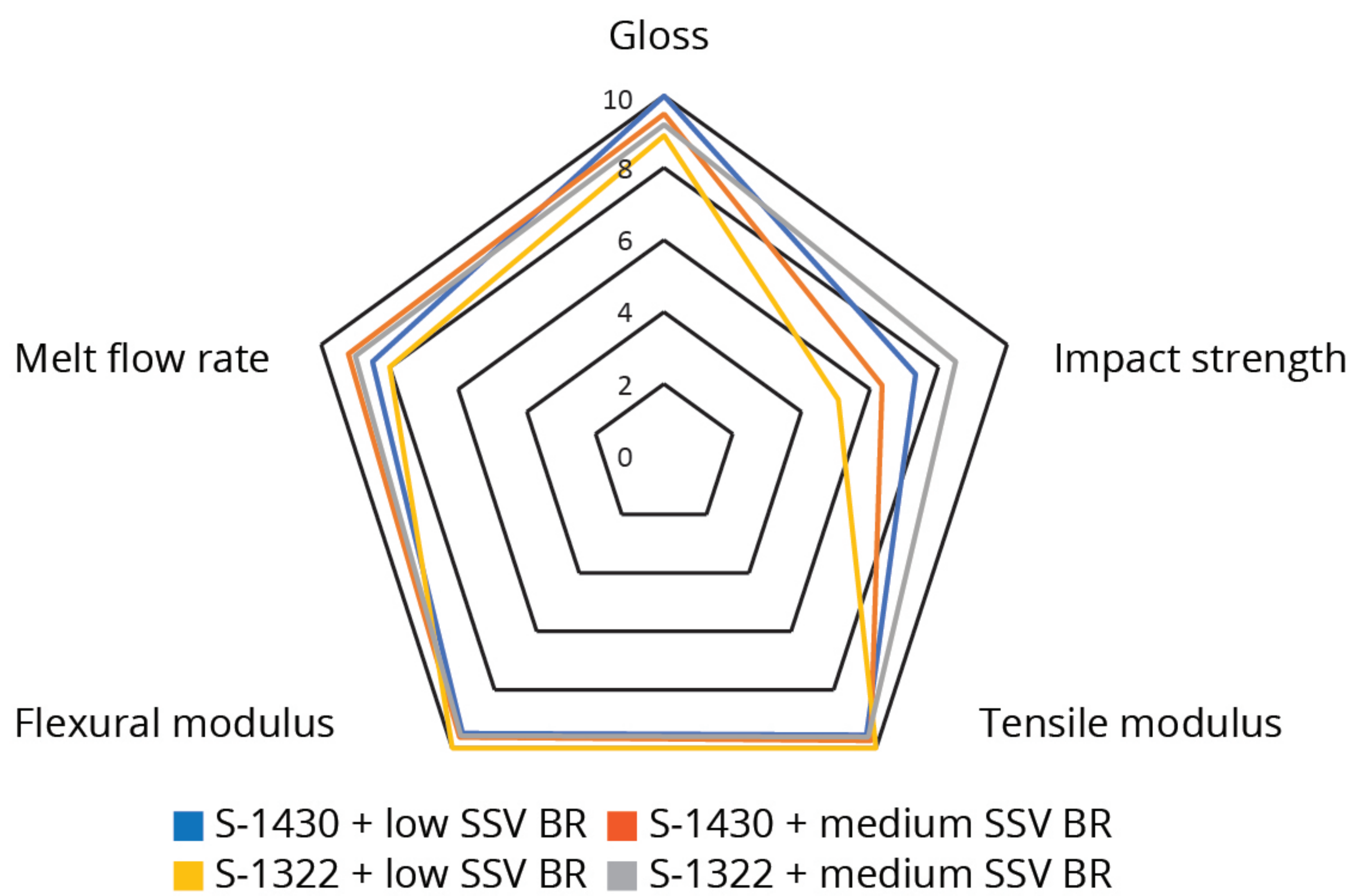


Table 2. Solprene Product Applications

Grade	Solprene 1106X	Solprene 1322	Solprene 1430
Automotive/transportation	✓	✓	
Consumer Electronics	✓	✓	✓
Appliances	✓	✓	✓
Construction	✓	✓	
Medical		✓	
Toys	✓	✓	
Packaging	✓	✓	✓

Recommended uses of HIPS

SSBR Solprene® 1322 + Medium or High SSV BR:

High gloss – medium impact strength – high stiffness HIPS, at total rubber loadings of 8-10%.

SSBR Solprene® 1430 + Low SSV BR:

Highest gloss – medium impact strength – high stiffness HIPS, at total rubber loadings of 8-10%.

High gloss – high impact strength HIPS, at total rubber loadings above 12%.

SUMMARY OF ADVANTAGES

- ◆ Low solution viscosity.
- ◆ Fast rubber dilution in ABS and HIPS formulations
- ◆ Ease of particle size regulation
- ◆ No cold-flow, easing storage and (automated) handling
- ◆ Surface without defects on extruded-thermoformed ABS or HIPS sheets
- ◆ Batch to batch consistency assured by strict process quality control and high process automation
- ◆ US FDA , TSCA, EU 10/2011, approved for food contact applications
- ◆ Proposition 65 and SVHC approved for toy applications