

高耐衝撃軽量発泡ドアトリム

Lightweight Molded Foam Door Trim with High Impact Resistance

採用車種 トヨタ クラウン

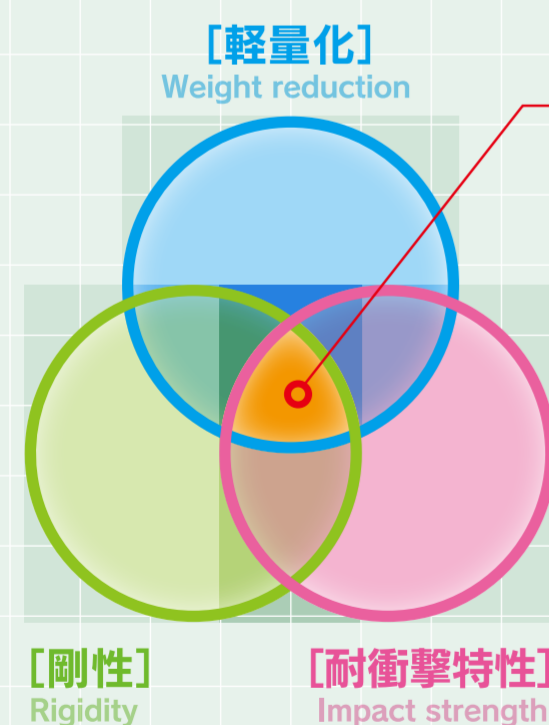
Vehicle: TOYOTA CROWN

世界トップレベルの耐衝撃特性を有する樹脂素材「高耐衝撃プラスチック」を活用したドアトリム。発泡成形技術を用いて、高い衝撃性能を維持しながら従来の基材と比較し約20%の軽量化を実現。

This door trim utilizes Toyota Boshoku's high impact-resistant plastic, a plastic material featuring world-class impact resistance. Our foam molding technologies enable us to create a door trim that reduces weight by approximately 20% compared to conventional base materials while maintaining high impact resistance.

特長 FEATURE

【設計コンセプト】 Design concept



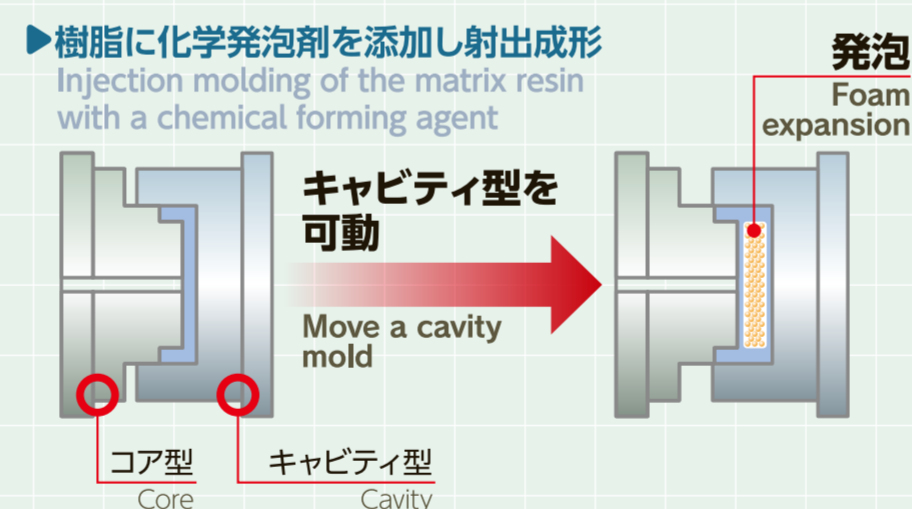
高耐衝撃軽量発泡ドアトリムの目指す姿
Approach to impact-resistant lightweight molded foam door trim

【課題】
Problem

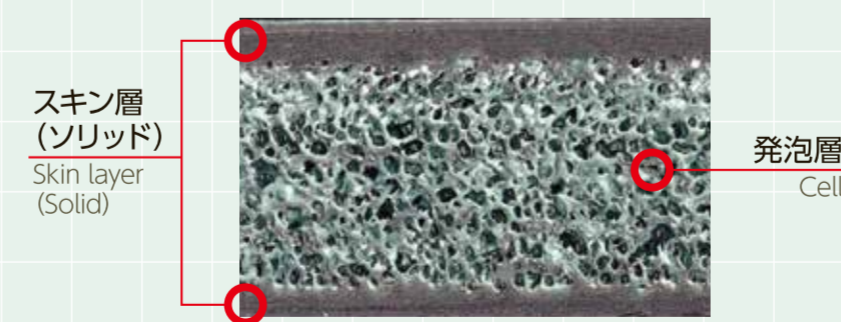
高倍率発泡での耐衝撃性低下
Reduction in impact resistance with high-expansion foam

当社開発の高耐衝撃プラスチックを衝撃改質材として活用することで割れを抑制
Use of our original high impact-resistant plastic as an impact modifier inhibits splitting and cracking

【発泡成形プロセス】 Foam molding process



▶発泡後の基材断面 Cross-section of material after expansion

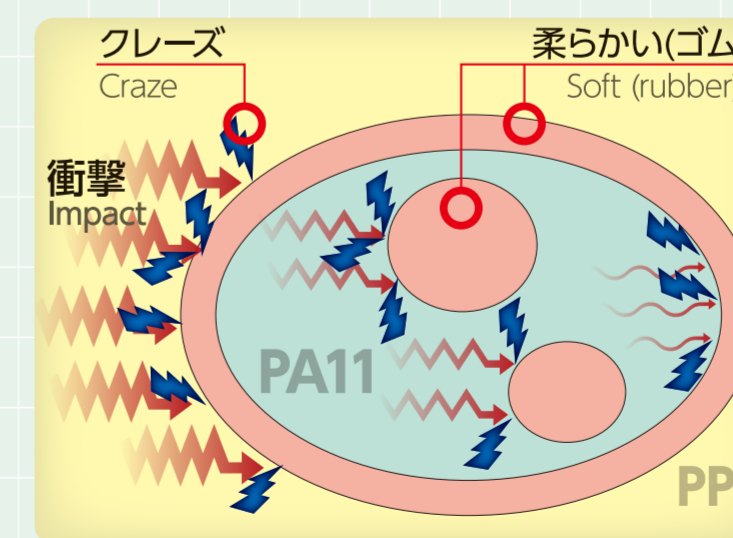


【割れ抑制メカニズム】 Mechanism in suppressing splitting

衝撃時にサラミ構造中の柔らかいゴムが、効率的にクレーズ*を発生させることでエネルギーを分散し、衝撃を吸収

During an impact, the soft rubber within the salami structure efficiently generates crazing*, dispersing and absorbing the energy of the impact.

▶衝撃吸収のイメージ Illustration of impact absorption



*クレーズ：衝撃入力時に発生する微小なひび割れ
Craze: Generation of microscopic cracks when energy is input in an impact.

▶車両側突試験後の透過型電子顕微鏡画像 Transmission electron microscope image of material after vehicle collision test

