

Contributing to the proliferation of next-generation energy and a carbon-neutral society TEONEX[®] PEN film adopted for use in Toyota's fuel cell vehicles



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Our TEONEX[®] high-durability and heat-resistant polyethylene naphthalate (PEN) film is positioned as a de facto global standard, finding wide use in automotive applications in recent years. Since the early 2000s, we have proposed TEONEX[®] to the automotive market as a material that will contribute to innovation in highly anticipated, next-generation technologies for fuel cells. In 2020, we developed a sealing material that subjects TEONEX[®] to a proprietary adhesive coating and precision processing. This sealing material has been adopted for use in the “MIRAI” fuel cell automobile for its high durability even in high-temperature or other harsh environments, and for its contribution to ensuring long-term reliability in fuel cells. Changing from conventional vulcanized bonding to thermoplastic bonding with sealing material that uses TEONEX[®] has significantly improved cycle time from over 10 minutes to several seconds. This accomplishment earned the product the “Toyota Group Technology & Development Award” in fiscal 2021.

Fuel cell vehicles are the ultimate “eco-cars,” emitting only water during operation. Fuel cell vehicles, including large buses, trucks, and passenger automobiles, are expected to become widespread throughout the mobility sector. In addition to bonding, TEONEX[®] provides functions including protection of power generation surfaces, insulation, and retention of gas intake/exhaust shape, contributing to technological innovation in fuel cells. The product is also expected to see use in water electrolytic hydrogen generators. The use and evaluation of TEONEX[®] is advancing in hydrogen-related markets around the world. TEONEX[®] holds potential as a key component supporting the hydrogen society of the future, and is indispensable as a material for proliferation of next-generation energy and the achievement of a carbon-neutral society.



“MIRAI” fuel cell vehicle, an adopter of TEONEX[®]