Japan Vilene's Environmentally Friendly Products

Worldwide action is needed to build a low-carbon society on a global scale. This rising awareness can be evidenced through various phenomena, from concerns over escalating global warming to the ratification of the Kyoto Protocol.

Japan Vilene is fulfilling its responsibilities as a manufacturer through the development and supply of products with a low impact on and due consideration for the environment.

Battery Separators for Hybrid Vehicles

Various types of "eco cars" aim to reduce CO_2 emissions: hybrid electric vehicles (HEVs), clean diesel powered vehicles, fuel-cell vehicles, and others. Of these variations, the HEV is currently the predominant contender for mass production.

In 1997, Toyota Motor Corp. led this field with its launch of the Prius HEV model. By April 2008, cumulative sales of the Prius surpassed one million units. This trend should continue on heightening environmental awareness and rising fuel prices.

Cutting-edge battery technologies from Japan have contributed to the widespread use and sales expansion of HEVs. At present, almost 100% of the batteries mounted in mass-produced HEVs are nickel-metal hydride units with separators employing Japan Vilene's high-performance nonwovens. Nickel-metal hydride batteries will continue to be the main energy source for HEVs in the future.

Ecoalpha Series of Environmentally Friendly Air Filters

Ecoalpha

The Company has developed and commenced sales of the Ecoalpha series of environmentally friendly medium- and high-performance air filters. We introduced lifecycle assessment (LCA) methods to evaluate the environmental burden posed by these products—from planning through materials procurement, manufacturing, distribution and sales; consumption and use; and recovery and disposal.

Ecoalpha products offer the following merits:

- Uniquely developed low-pressure-loss, high-efficiency, long-life filtration products
- Reduced power consumption (in-house comparison), as a result of low pressure loss
- A filter recycling system
- Reduction of regulated chemical substances (free of halogen, formalin and low VOC)
- Volume and weight reductions realized through slim design and desorption

As a result of these characteristics, Ecoalpha series products can achieve an approximate annual reduction of 100kg in CO_2 emissions per unit compared with corresponding conventional products (in-house comparison).

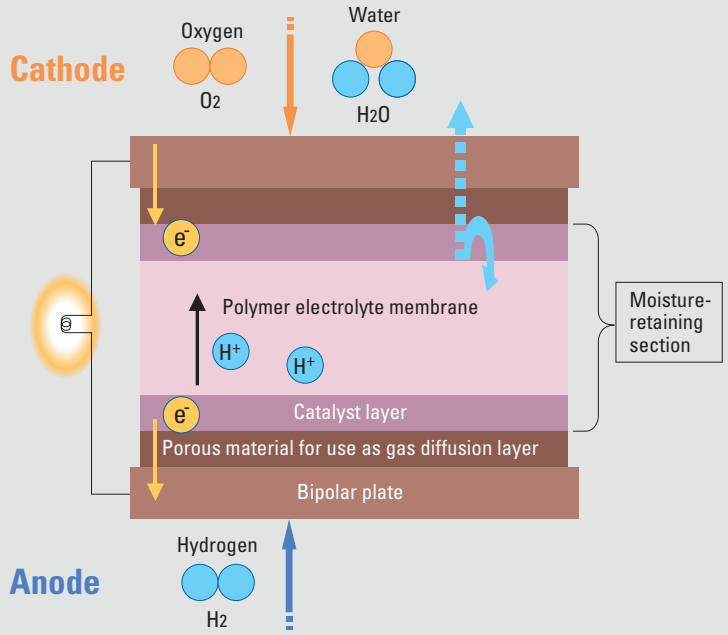
Development of a Gas Diffusion Porous Material for Fuel Cells

At its Research & Development Center, Japan Vilene carries out its R&D activities according to the concept of "benefiting the environment." We are surging ahead with R&D into a gas diffusion porous material that uses a gas diffusion layer (GDL) as a possible approach to fuel cell materials for fuel cell vehicles designed for zero CO_2 emissions. This GDL facilitates the efficient supply of hydrogen, which serves as the fuel, and oxygen to a catalyst layer inside the battery, thus playing a vital role in the performance of the battery.

The Company's gas diffusion porous material is the world's first with a GDL function that does not employ carbon fibers. This situation allows quick response to customer requirements and enables greater GDL design flexibility. Moreover, these advantages are achieved with competitive cost benefits.

As this is a micro-porous structure, it uses water produced in the cathode reaction to facilitate moisture retention within the battery. This eliminates the need for a humidifier as an auxiliary unit in a fuel-cell vehicle, which leads to economies in weight and bulk.

Principles of a Polymer Electrolyte Fuel Cell



Recycled PET Fiber Materials

Headliner materials are one of Japan Vilene's main automotive products. Nonwoven headliner materials boast excellent characteristics in terms of weight, moldability and design, and are employed in many of today's vehicles.

We are using recycled fibers from polyethylene terephthalate (PET) bottles in our nonwoven materials. These recycled fiber materials are produced by our wholly owned subsidiary, Oyama Chemical Co., Ltd. The subsidiary, which has a track record in actively promoting the use of recycled raw materials for products, supplies 100% polyester recycled fiber materials to manufacturers of nonwovens. Japan Vilene acquired Oyama Chemical in 1997 to launch its business of providing recycled fiber materials as raw materials for nonwovens. This decision was based on Oyama Chemical's recycled fiber and dyeing technologies, which can be applied to microfibers, facilitating excellent textural properties and color-fastness for headliner materials and meeting the quality needs of automakers.

Japan Vilene and Oyama Chemical will continue to work together to ensure the supply of top-quality products, while supporting the environment and raising the productivity of automakers.