



Environmentally Friendly Products and New Energy

The Showa Shell Group is engaged in the manufacturing and sale of a number of products that incorporate concern for environmental protection.

Environmentally Friendly Products

Sulfur-free gasoline and kerosene

Showa Shell commenced its supply of sulfur-free fuels (which have a sulfur content of 10 ppm or less) on January 1, 2005.



GTL Fuels

GTL fuels synthesized from natural gas contain virtually no sulfur or aromatic substances, which makes them easier on the environment. From July to September 2005, Toyota Tsusho Corporation and Shell International Gas Ltd., jointly supplied GTL fuel for the diesel hybrid shuttle busses operated by JR Tokai Bus Company at the 2005 World Exposition, held in Aichi, Japan.



Shuttle bus at the 2005 World Exposition in Aichi, Japan.

Environmentally friendly Eco-kerosene, born of GTL technology, does not have the characteristic odor of petroleum fuels. This means it can be stored indoors, and it burns cleanly. Because it is more stable than ordinary kerosene, it can be used safely, with full confidence. To promote the use of GTL kerosene, the company conducted test marketing of Eco-kerosene (a fuel specifically for fan heaters) in Kanagawa Prefecture, Gunma Prefecture, and Western Tokyo in the winter of 2004, and from December 2005 through March 2006. Eco-kerosene was extremely well received by consumers.



New Mellowphalt—Environmentally Friendly Asphalt

The weaknesses of earlier colored asphalts were thoroughly analyzed in the development of New Mellowphalt, leading to an environmentally friendly asphalt product that is easy to use on the construction site, produces less odor during use, and offers the strength and durability needed in pavement. New Mellowphalt meets the diverse needs of people ranging from those in the asphalt pavement business to ordinary drivers, and it can therefore be considered customer-oriented paving material. To date, it has been used in the much-complimented Horyuji Temple, Osaka Castle, and other tourist destinations, as well as in

the restoration of the ancient Tokaido and at the Aichi Expo. New Mellowphalt was also used in the Tomei Expressway's Uri Tunnel, in order to brighten the inside of the tunnel and help prevent traffic accidents.



Horyuji Temple grounds.



New Mellowphalt used in Ouda-cho street landscape.

Biodegradable Oil

Showa Shell's biodegradable oil can be broken down by bacteria in the event of a spill, preventing pollution of the environment. It has a biodegradation ratio of more than 90% under the Commission of the European Communities standard. The company markets two oils that have received Eco Mark certification.

Shell Natural HF-E 32/46

This is a biodegradable hydraulic oil, ideal for use in forests, farms, near rivers, lakes, and the seashore, and anywhere else that environmental protection is a must.



Shell Bio Catena Oil 150

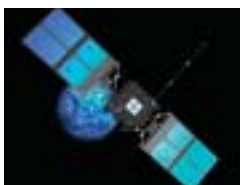
A biodegradable chain saw oil, Bio Catena has superior tackiness and mist control and won't scorch trees, thereby reducing rot in roots and cut surfaces.

New Energy

Engagement in Clean Energy through Solar Batteries

Solar batteries, which convert the solar energy that ceaselessly bombards the earth's surface into electricity, are a promising source of clean energy. Solar batteries (1) do not emit CO₂ or other greenhouse gases when producing electricity, (2) are an efficient use of the space between roof and rooftop, (3) can be used as an emergency power source, and (4) can provide electricity for 30 years, maintenance-free.

Showa Shell commenced research and development of solar batteries in 1978. Since 1988, the company has been conducting research into next-generation CIS solar batteries with support from the New



The Tsubasa satellite.

Energy and Industrial Technology Development Organization. CIS solar batteries were selected for use on the Tsubasa satellite for their high reliability.



A service station with solar batteries installed.

The company is engaged in research and development aimed at encouraging the marketing and spreading, or diffusion, of solar batteries. In addition to public facilities and residences, solar batteries are being used to power street lights, clock towers, and mountain lodges, and for many other uses, and are establishing a very good track record. An increasing number of service stations are installing solar batteries, and it is expected that they will be very good emergency power sources.

CIS Solar Batteries

CIS solar batteries are a type of thin-film solar battery and are looked to as the next generation of solar batteries.

CIS solar batteries have the following characteristics:

- (1) They require only a small amount of materials to manufacture because the electricity-generating component is thin film.
- (2) Little energy is used in their manufacturing (thus, the energy payback time is short).
- (3) They contain no lead, cadmium, or other substances that impose a heavy environmental impact.

These characteristics justify calling solar batteries an environmentally friendly product. The company is

building a CIS solar battery manufacturing plant in Miyazaki City, Miyazaki Prefecture, which will produce 20 MW of solar batteries per year, enough to power approximately 5,000 residences. The plant will begin commercial manufacturing in January 2007. Showa Shell is working to promote the increased use of CIS solar batteries, which provide clean energy, while at the same time pursuing new sources of energy that meet the company's criteria in its mission to protect the environment.



CIS solar batteries use a thin film compounded of copper, indium, and selenide. They have an entirely different structure from conventional crystalline silicon solar batteries, and because they do not use silicon, there is no problem with insufficiency of materials. Further, it is possible to reduce costs by integrating the manufacturing process, from raw materials through to the finished product. Finally, because they contain no lead or cadmium, CIS solar batteries are environmentally friendly.

Hydrogen Fuels, Hydrogen Stations, and Residential-Use Fuel Cells

Showa Shell is participating in the Japan Hydrogen and Fuel Cell Demonstration Project by the Ministry of Economy, Trade and Industry of Japan (METI). The project has, since June 2003, been operating the Ariake Hydrogen Station, Japan's first liquid and compressed hydrogen supply facility. As of the end of April 2006, this

station had supplied hydrogen fuel to more than 1,700 vehicles.

Since 2005, the company has been participating in the Mie Prefecture Fuel Cell Verification Test and METI's Large-Scale Stationary Fuel Cell Verification Test, and has begun test operation of residential-use fuel cell systems.



The Ariake Hydrogen Station.



Residential-use fuel cell.