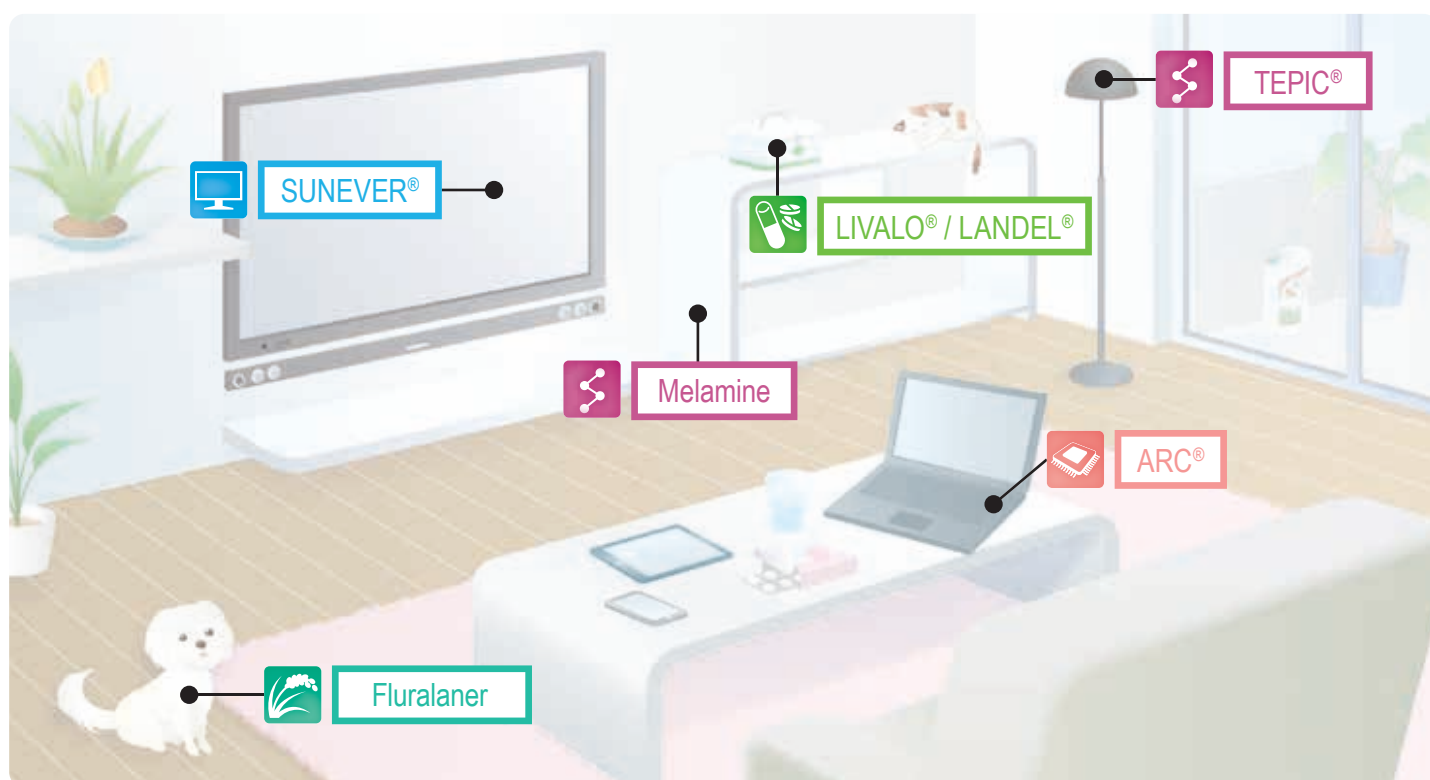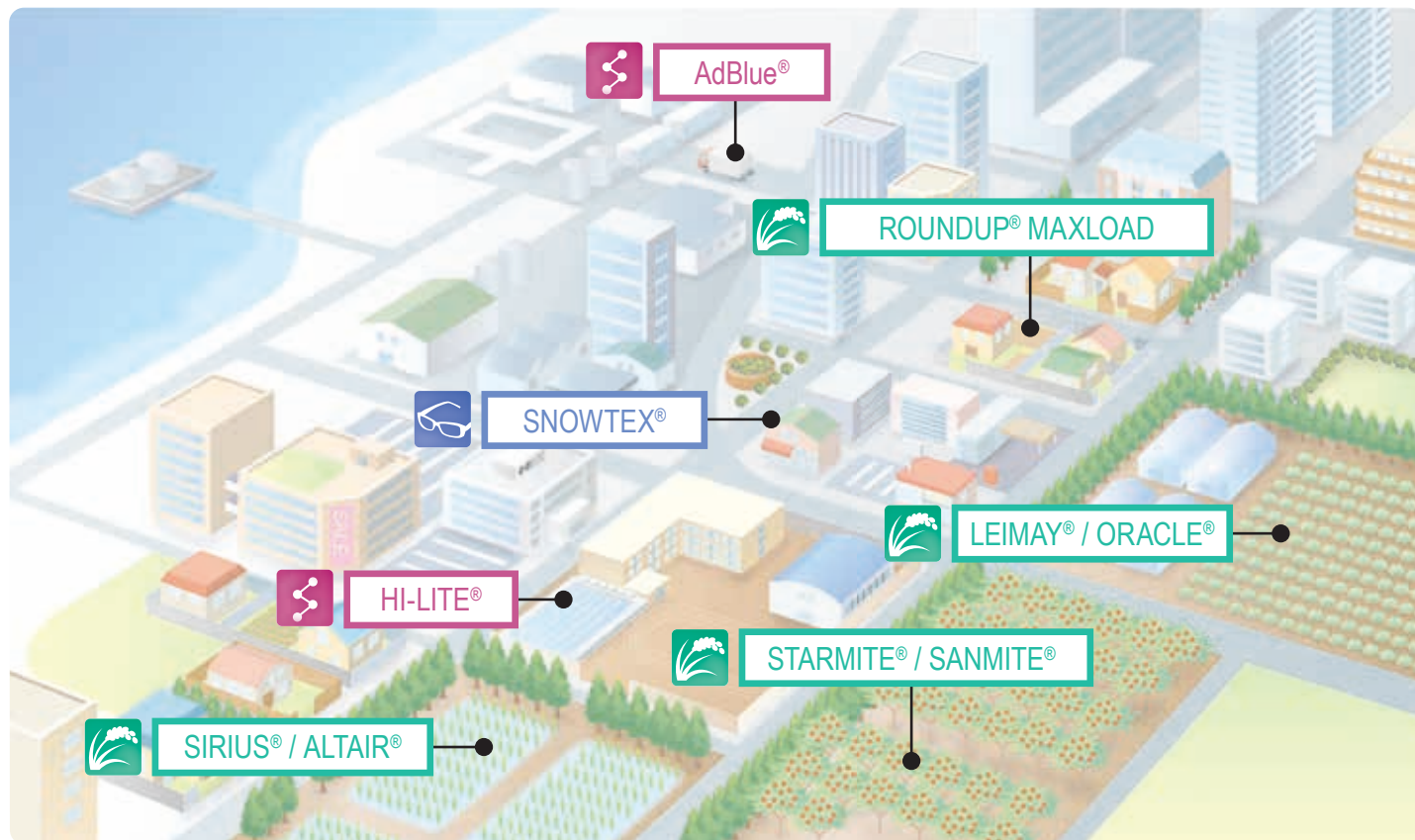# Nissan Chemical Products that Play an Active Role in Society

Here we introduce our three business domains and products used in various parts of society.

AdBlue®

ROUNDUP® MAXLOAD

SNOWTEX®

LEIMAY® / ORACLE®

HI-LITE®

STARMITE® / SANMITE®

SIRIUS® / ALTAIR®

TEPIC®

SUNEVER®

LIVALO® / LANDEL®

Melamine

ARC®

Fluralaner

Performance Materials

Display Materials

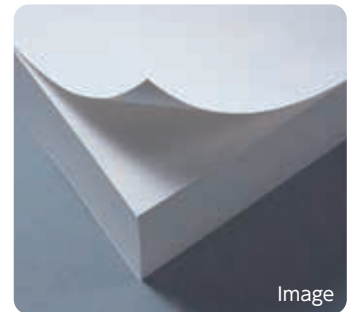- SUNEVER® (LCD alignment coating)
- NHC® (inorganic coating materials)

Semiconductor Materials

- ARC® (bottom anti-reflective coating)

Inorganic Materials

- SNOWTEX® (semiconductor polishing, hard coating, etc.)
- Organo silica sol (coating for anti-scratch, insulation, CTE reduction)

Image

LCD TV

Image

Image

7 AFFORDABLE AND CLEAN ENERGY | **9** INDUSTRY, INNOVATION AND INFRASTRUCTURE | **12** RESPONSIBLE CONSUMPTION AND PRODUCTION | **13** CLIMATE ACTION

Life Sciences

Agricultural Chemicals

Herbicide	Insecticide	Fungicide
SIRIUS®	STARMITE®	LEIMAY®
ALTAIR®	SANMITE®	ORACLE®
ROUNDUP® MAXLOAD		PULSOR®
TARGA®		
PERMIT®		

Active ingredient for veterinary pharmaceuticals

- Fluralaner

Pharmaceuticals

- LIVALO® (anti-cholesterol agent)
- LANDEL® (anti-hypertension agent)

Novel agent under development

- NIP-022 (thrombocytopenia treatment agent)
- NTC-801 (anti-arrhythmic agent)

Chemicals

Chemicals

- Melamine (adhesive agent for particle board)
- High purity chemicals
- AdBlue® (high-grade urea solution)
- FINEOXOCOL®
- TEPIC® (epoxy compound for LED sealants, solder resist, painting)
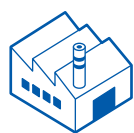- Melamine cyanurate (flame retardant)
- HI-LITE® (chlorinated isocyanuric acid for sterilizing)
- Nissan Reishi (health food)

2 ZERO HUNGER | **9** INDUSTRY, INNOVATION AND INFRASTRUCTURE | **3** GOOD HEALTH AND WELL-BEING | **9** INDUSTRY, INNOVATION AND INFRASTRUCTURE | **6** CLEAN WATER AND SANITATION | **9** INDUSTRY, INNOVATION AND INFRASTRUCTURE | **11** SUSTAINABLE CITIES AND COMMUNITIES

Environmentally Friendly Products

We define environmentally friendly products as the products that reduce environmental impact across each of the processes below, from manufacture to distribution, use and disposal, or that play an important role in achieving that goal. We have set ourselves the goal of improving the percentage of our products that are environmentally friendly.

Manufacture ▶ Distribution ▶ Use ▶ Disposal

i. Saving energy
iv. Reducing waste and environmental pollutants

ii. Reducing CO_2
v. Purifying air and water

iii. Conserving resources (water, raw materials)
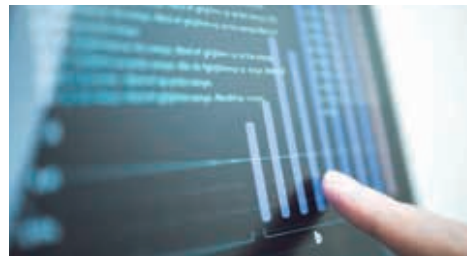vi. Renewable (new) energy

Performance Materials

HYPERTECH®

Nucleating agents for electroless plating

Nucleating agents make it possible to reduce the amount of metal used for wiring in items such as flexible printed substrates or touch panels by more than 90%.

Metal wiring is made by forming a metal film across the entire surface of the substrate in a vacuum, and then removing unwanted parts with acid. HYPERTECH® makes it possible to draw wiring patterns, meaning that metal only adheres to drawn lines. This in turn minimizes the amount of metal plating required.

▲ Touch panel

Coating materials with ultra-high refractive index

OLED lighting is known as one of low environmental impact application. HYPERTECH® makes a film that is applied between the electrodes and substrate, or between the electrodes and light source of OLED and makes it possible to improve light efficiency from the light source by up to 20%. This product is transparent and heat resistant, and offers excellent adhesion to different substrate materials. Ease of application can also help to reduce manufacturing costs.

▲ OLED lighting (illustration purposes only)

Inorganic Materials

SNOWTEX®, Aluminasol, Organo silica sol, NanoUse® ZR

Materials can be used for a wide range of purposes, including saving energy from transformers, improving the efficiency of natural energy, purifying emissions, and extending the life of motors.

▲ Purifying emissions (illustration purposes only)

Agricultural Chemicals

Compact agrochemical formulations

We supply lightweight and compact agrochemical formulations that contain a high concentration of active ingredients, including WG (Water dispersible) and Jumbo (floating granules, containing active ingredients, wrapped in a soluble film). This helps in ways such as reducing packaging materials, waste products, and CO_2 emissions from manufacturing and shipping.

▲ Comet WG

▲ Tenku Jumbo

Chemicals

AdBlue®

AdBlue® is a high-grade urea solution used in "urea SCR system", a technology for purifying emissions. When sprayed onto emissions from diesel vehicles, it breaks down nitrogen oxide (NOx) into harmless nitrogen and water, which helps to reduce environmental impact. We supply AdBlue® in line with each customer's needs, in tank trucks, 200L drums, $1m^3$ containers, or BIB (Bag-in Box, 20L, 10L).

▲ AdBlue®

HI-LITE®

HI-LITE® is widely used to assist with environmental sanitation for purposes such as disinfecting and sterilizing pools and septic tanks. Having obtained certification under NSF / ANSI-60 (the standard for chemicals intentionally added to drinking water), there is new scope to expand the range of applications for HI-LITE® for sterilizing drinking water, such as applying in areas where standards of sanitation are insufficient, particularly in developing countries.

▲ Hygienic water supplies (illustration purposes only)

Venus® Oilclean

Venus® Oilclean is a microorganism formulation that decomposes oils and fats in wastewater from food factories and other facilities. Compared to the pressurized floating facility, which is a typical oils and fats in wastewater treatment system, the facility using Venus® Oilclean significantly reduces odors and workload as well as waste with simple equipment. Some major food factories have reduced the amount of waste derived from oils and fats to almost zero by introducing this product.
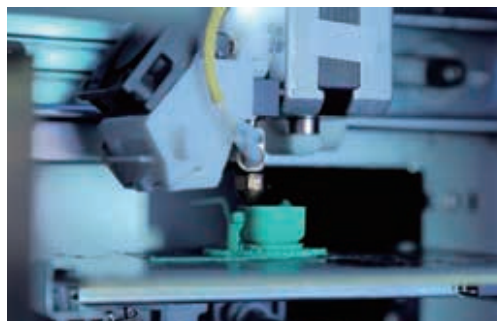

▲ Industrial water treated with wastewater (illustration purposes only)

Advanced Materials & Planning

ECOPROMOTE® Series

ECOPROMOTE® is a crystal nucleating agent for polylactate. Combining the properties of a bioplastic, made from plant instead of oil, and a biodegradable plastic that is broken down into water and carbon dioxide by microorganisms, polylactate is the foremost carbon neutral synthetic resin in terms of practical application. Uses are nonetheless limited due to issues relating to moldability and heat resistance. ECOPROMOTE® stimulates the growth of polylactate crystals, and can be used for high speed injection molding or extrusion molding without affecting transparency. As a result, it is increasingly being used for durable purposes such as electronic devices, printers and filaments in 3D printers.

▲ 3D printer