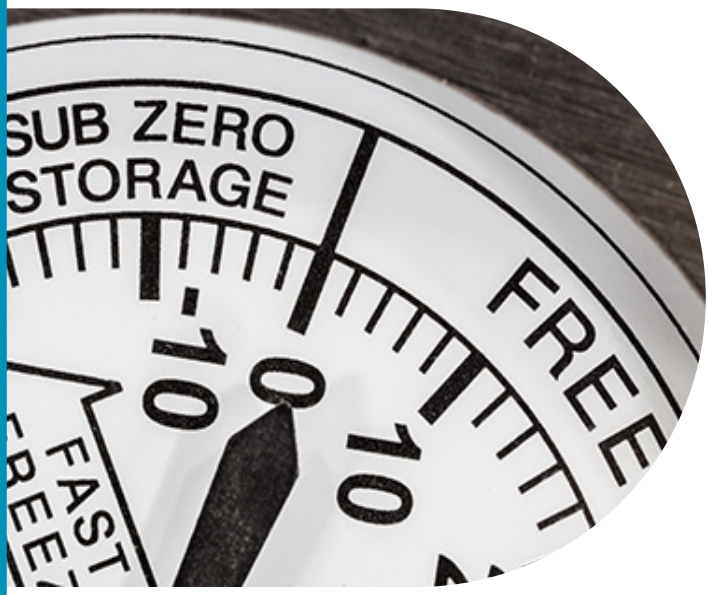

COOL OPERATOR

An innovative low-temperature platinum catalyst developed in Japan has the potential to deliver a range of environmental benefits

Platinum is prized for its catalytic properties – improving chemical reactions and increasing yields, for example in the production of nitric acid, which is a key feedstock in the production of fertiliser. Elsewhere, platinum catalysts are used in the petrochemical industry and to make silicone products. Platinum catalysts are also used in vehicles to reduce harmful emissions; use in autocatalysts is the number one source of platinum demand.

Although catalysts are used to promote chemical reactions, many catalysts do not work unless they are in a high temperature environment. However, in a world first, a business in Japan, Furuya Metal (Furuya), has developed a platinum catalyst that works at low temperatures. Furuya's 'FT-eco catalyst' is effective within a temperature range of zero to 30 degrees and is even known to operate at subzero temperatures.

Environmental applications

The breakthrough, low-temperature platinum FT-eco catalyst is so-called due to the potential it offers for applications with an environmental benefit. For example, the platinum FT-eco catalyst can remove ethylene, which accelerates the decay of fruit and vegetables, from the atmosphere. Platinum's sister metal, palladium, is already used as an ethylene absorber. When applied as part of a filter in the packaging of fruit and vegetables, it delays the ripening process of produce, thus extending its shelf life.

Furuya's low-temperature platinum catalyst, which exhibits a high level of catalytic effect when simply placed within the target space, could prove vital in reducing food waste, with one possible end-use including refrigeration – both commercial and domestic – to prevent fresh produce spoiling across the food supply chain. According to the Food and Agriculture Organisation of the United Nations, an estimated 1.3 billion tonnes of food, or one third of all food produced for human consumption, is wasted globally each year, at an annual cost of US$ 2.6 trillion.

A further possible application for Furuya's platinum FT-eco catalyst is in the area of public hygiene, with the elimination of volatile organic compounds (VCOs) that cause allergies and offensive odours. It also has anti-bacterial properties.

In time, it is envisaged that FT-eco catalysts will be used in a wide range of ways, ranging from home appliances such as air conditioners, air purifiers and refrigerators to industrial uses, for example in shipping containers serving the food services sector.

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