

# Member Profile



As a specialized polymer R&D center, Norner has a history which stretches back to 1977 and current investment which includes different types of plastics extrusion and moulding, as well as new measurement equipment for its labs.

Located to the southwest of Oslo, the operation was originally established at what was then a new petrochemicals site. This was at a time when Norway had recently discovered oil and gas deposits under the North Sea, explains market manager and packaging advisor Ole Jan Myhre.

“Until 1994, the R&D center served all technical disciplines of PE and PP catalysts, polymerisation and additives for plastics and processing for typical infrastructure, automotive and packaging applications,” he says. Between 1994 and 2007, the organization had a key R&D role within Borealis. Packaging end-uses assumed greater importance, resulting in more than 100 patent applications.

“In 2007, the site was sold by Borealis, and the R&D center was bought out by the employees, together with a regional investment fund,” says Myhre. “Since then, we’ve been engaged in funded R&D projects in Norway and Europe more widely, as well as providing R&D services to industry.” These services have included product and polymer recipe development, contributed to by Norner’s experts, its pilot lines and labs.

Since 2015, the center has been owned by Thai company SCG Chemical which, says Myhre, has “the ambition to strengthen Norner as an independent European R&D organization.”

Work is focused in areas including compounding, product testing and pilot plant operations for both processing and recycling. Compounding involves the development of recipes and blends of both fossil-based and bio-based polymers, among them functionalised materials, additive recipes, nano-compounds and plastics filled with natural fibres.

When it comes to process pilot lines, projects may require the evaluation of resins, blends or multilayer structures, Myhre explains, as well as the preparation of prototypes using the same materials for further testing. With regard to the recycling pilot center, he says: “As well as material recyclability, we investigate the effects of the waste management value chain on material quality, properties, purity and potential applications.”



**Blow Moulding at Norner**

Norner also has a strong track record in innovation. Examples include machine-direction oriented polyethylene (MDOPE) films for different packaging applications, says Myhre, EasySlip surfaces for injection moulded packaging and barrier options for injection moulded packaging. Among further innovations, he singles out new biobased materials derived from potato peel and novel antioxidant systems. "Some of these have also been turned into services, such as our barrier calculator for packaging applications and the recycling pilot center," he adds.

Meanwhile, the technology center has continued to upgrade its equipment. "The main investments relevant to packaging are: a multilayer film pilot extrusion line with seven extruders; a three-layer extrusion blow moulding line; a thermoforming line; an electron scanning microscope; and oxygen transmission rate (OTR)/water vapour transmission rate (WVTR) measuring instruments," says Myhre.



Asked about the impact of the pandemic on Norner's activities, he reports little in the way of negative effects. On the contrary, a stronger-than-average growth rate began before Covid-19 surfaced. "But we have seen an even higher growth in projects and

requests during the pandemic," he says.

The organization participates in joint and collaborative R&D projects, both at a Norwegian and European level. It is currently a part of Horizon 2020 projects including two – Terminus and Mandala – aiming to create more sustainable multilayer packaging, and PyroCO<sub>2</sub>, which seeks to "turn CO<sub>2</sub> into useful chemicals, including monomers and plastics," says Myhre.

IAPRI, too, could open new doors when it comes to joint R&D. "We think it will bring new contacts for collaboration, and thereby strengthen our capability to solve complex problems," he states.