



# Newsletter

January 2017

## A long-term successful customer case

**In December 2016, Nexam Chemical employees made a customer visit to one of our oldest partners within the high-performance segment to further develop our joint businesses. In November 2016 the customer ordered NEXIMID® corresponding to 5.3 MSEK to be delivered during the coming year.**

Nexam Chemical has a long history together with the customer who initially worked together with Perstorp with the high-performance molecules originally developed by NASA. In 2009, Nexam Chemical acquired the molecules from Perstorp which was the base in founding Nexam Chemical. Nexam Chemical has since then continued the development and the collaboration regarding the high-performance molecules.

### For the most demanding environments

The customer is a true high-performance polymer company. The resins they produce, which often includes Nexam Chemical products, are used in applications which are exposed in the most demanding environments at all in the world of plastics. Often the material is used as an alternative to titanium in aircraft engines. In its niche, the company belongs to the leading experts in the world of high temperature polyimide composites and is focused on delivering the highest temperature, best performing polyimide products in the market.

### Driving forces in the aircraft industry

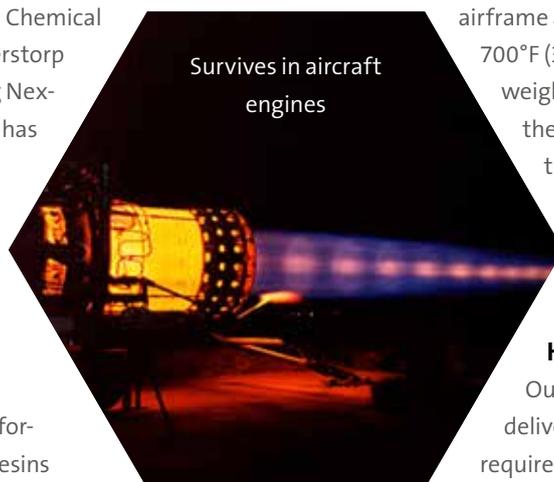
An industry searching for this kind of products is the aircraft industry which is driven by the need for faster, lighter aircraft and more fuel efficient performance. The

resins produced, which includes NEXAMID®, leads to the development of revolutionary high temperature polymer composite materials for military and commercial airframe and engine applications to over 700°F (371°C). The strive for reducing weight of materials in aircrafts face the challenge and requirements that the lighter materials still need to withstand high temperature and pressures in extreme environments.

### Hard work and patience

Our customer has been able to deliver solutions that meet these requirements. It has resulted in that they are involved in several large industrial projects; designing completely new aircraft families. Technical excellence, hard work and patience has resulted in that the customers' business has taken-off, which also spills over on Nexam Chemical receiving the largest order so far in the company history. They are convinced that they have built a platform that will be relevant for the industry for many years to come.

Supporting the customer with building blocks to their resins has also been a challenge for Nexam Chemical. It has been a long journey, but with a very strong offer and with this excellent reference within the world of composites, new possibilities arise for Nexam Chemical.



Survives in aircraft engines

## The rPET-project and how Nexam Chemical is moving forward

The rPET-project partly funded by Vinnova/Eurostar was completed during the autumn and Dane Momcilovic, CTO at Nexam Chemical talks about the project and how the results will be used in Nexam Chemicals business moving forward.

### What does rPET stand for?

rPET stands for recycled PET. Today many countries in Europe, North America and Asia have established recycling systems for PET, especially PET-bottles are washed and grinded into PET-chips and then reused in new products. The most common area for reused PET is rPET-bottles, but rPET can also be used in a variety of other end-products. Such as tray for food packaging, fiber for clothing and technical applications, hard foam for lightweight constructions, PET-strapping for bundling of goods etc.

PET is, like many other materials, partially destroyed during its lifecycle and during the recycling process. Therefore it has inferior performance compared to virgin-PET, i.e. PET produced from new raw material (oil). Therefore the rPET needs to be upgraded, mended, to make it work and compete with virgin-PET. In the market there are several technologies for upgrading

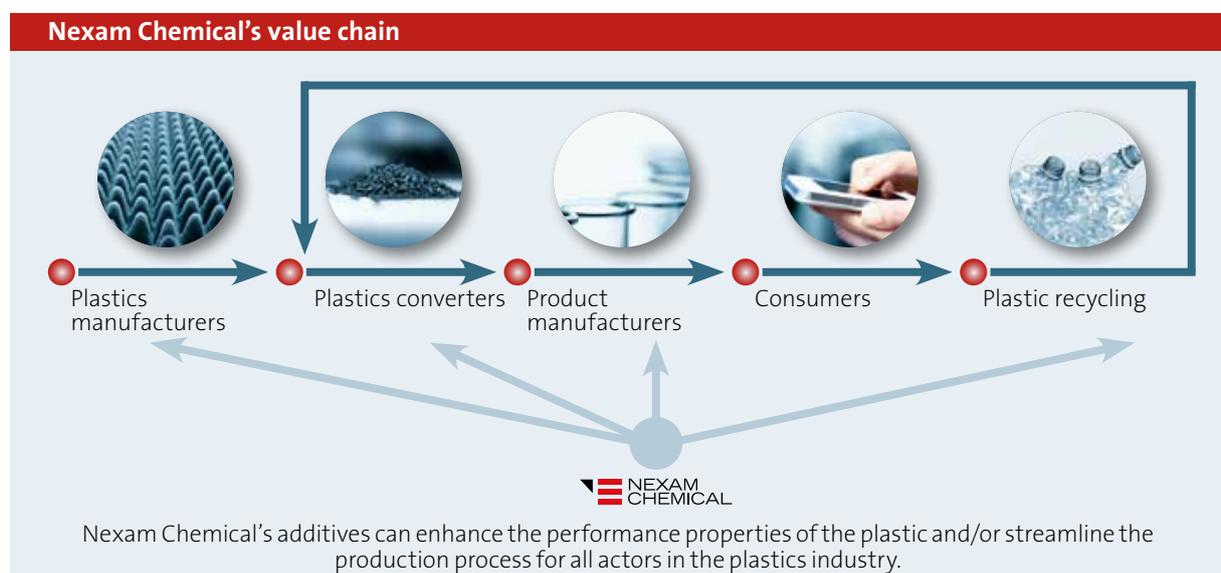
rPET, but Nexam Chemical can offer a simple and cost effective alternative.

### What was the aim and purpose for the rPET-project?

The objective of the project was to demonstrate that rPET, using Nexam Chemicals technology, can be used competitively in more end-products and technical applications. In collaboration with two European partners the focus was set on rPET for the production of PET-foam. Nexam Chemicals task was to develop reactive additives that could provide enhanced mechanical properties and process ability. The technology was at the same time successfully evaluated for other applications. This gives new business opportunities for Nexam Chemical.

### How was the project objectives met?

The main product in the project, foams based on rPET,



has been significantly improved regarding mechanical properties. It makes material and cost savings possible when a product with equivalent performance can be produced with less material. It also provides opportunities in other end-products where more high performing and expensive foam materials are used today.

### **What advantages does rPET have compared to the so called “virgin”-PET?**

Virgin-PET is PET produced from new raw materials based on oil. The price of virgin-PET will therefore vary with the price of oil. When a manufacturer chooses to use recycled PET, the cost of material is lower than for virgin-PET. But, to be able to reach equivalent properties with rPET, an upgrade of the rPET is required. This, could for example, be done by adding a reactive additive like NEXAMITE®. Considering sustainability as a driving force in the industry, rPET is environmentally superior to virgin-PET. The recycling contributes to reduced consumption of raw materials (oil), but the recycling process is also more energy efficient than producing virgin-PET from oil.

### **How can Nexam Chemical products contribute to increase the use of rPET?**

Recycled PET often has limitations compared to virgin-PET concerning performance. When Nexam Chemical products are added, the rPET is upgraded and

the performance of the end-product will be equivalent to the corresponding end-product with virgin-PET. There are other products on the market that can upgrade rPET, but our technology differs from these. In some cases the customer prefers our solution (e.g. PET-foam), while in other cases it is better to use another solution. It depends on what properties the customer wants to achieve in the end-product.

### **What is the next step for Nexam Chemical, taking the new knowledge and development to the market?**

We are now working to develop the technology and make it more user friendly, which includes developing formulations and masterbatch that help our customers apply it in their manufacturing process. Some of these solutions are already developed and customers are far into their test cycles, but we see that there are products and applications in other sectors with needs and requirements that we are not able to address with today's products. Therefore we have extended the development activities. There is a large interest in the market to upgrade recycled PET so that it can be used in more end-products. The interest is driven by the customer's ambition to reduce the cost of materials, but also for sustainability reasons since many customers are developing their environmental profile.

## Great interest at the Open house at Nexam Chemical



**On 15 December, Nexam Chemical organized an Open house for shareholders and other interested parties. It was two pleasant hours where about 20 interested and curious visitors had made their way to the company's office on the fourth floor at Ideon in Lund. One shareholder so curious that he arrived a day early, but we hope nevertheless that he felt welcome and was pleased with his visit to Lund.**

The visitors had the possibility to talk with the company's employees and were treated to classic Swedish gingerbread and saffron buns, while Anders presented the company's business. Many specific and in depth questions were asked by the visitors. There was also an opportunity to visit the plastic laboratory, where Malin

gave a short tour and described the different activities taking place. The initiative to an Open house received positive reviews from many of the visitors, so it is probably not the last time for an Open house at Nexam Chemical.

## Nexam Chemical participates in Aktiedag in Lund. Aktiedagen is arranged by Swedish Shareholders' Association

On Tuesday 31 January 2017, Nexam Chemical participates at Aktiedagen in Lund arranged by Swedish Shareholders' Association. Aktiedagen is held at Medicin Village, Scheelevägen 2 in Lund. At 15.30 CET, CEO Anders Spetz will present the Company and its operations followed up with a Q&A session. The presentation will

be broadcasted live on internet via [www.aktiespararna.se/live](http://www.aktiespararna.se/live) and will also be available on demand afterwards at [www.aktiespararna.se/ondemand](http://www.aktiespararna.se/ondemand). Registration to Aktiedagen in Lund is made at [www.aktiespararna.se](http://www.aktiespararna.se) (at the bottom of the page). **Welcome to Lund!**