

# Exceeding expectations: Safer and better

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## CHALLENGES

In order to reduce emissions to a minimum and increase the employee's safety at the facilities, Elkem cooperate with NEO Monitors.

At Elkem's plant in Salten, Norway, silicon is produced from quartz in a high temperature process using coal and coke as reducing agents. The silicon is typically used in key components in technical and electronic products, chemical industry, medical industry, cosmetics and more. In the melting process, gases such as Nitrogen Oxides (NO<sub>x</sub>) are formed. Elkem's focus on environment and safety requires full control and oversight in all aspects of the manufacturing process.

– In 2009 we did a major measuring campaign at our plant. This campaign was a part of the FUME research program with participants from SINTEF, NTNU and the Ferroalloy Industry Research Association (FFF). The aim of the FUME program is to gain better understanding of the fugitive emissions from the Norwegian ferroalloy industry. As a continuous of this campaign, the formation mechanisms of NO<sub>x</sub> and how

these emissions can be reduced became an important part of FUME. This was the start of our collaboration with NEO Monitors, says Nils Eivind Kamfjord, R & D and Technology at Elkem Salten.

## SOLUTION

– During the campaign, analyzers from NEO Monitors exceeded our expectations. We conducted long time series measurements and with accurate results. To ensure the quality of the results we used a third party analyzer in the initial stage, says Kamfjord.

NO<sub>x</sub> occurs in combustion processes. Most of the world's emissions come from shipping and traffic exhaust, but also from land-based industries. The Ferroalloy Industry counts for around five percent of the total NO<sub>x</sub> emissions in Norway.

– Analyzers from Neo Monitors are measuring the concentration of NO<sub>x</sub> in the exhaust gas from our three furnaces. The results are logged online and allow us to follow all processes very closely. This gives us

**“NEO MONITORS IS A MODEST COMPANY THAT OOZES EXPERIENCE, QUALITY AND COMPETENCE IN ALL AREAS. WE EXPERIENCE QUICK AND GOOD SERVICE AND SUPPORT”**  
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good indications of where and when NOx emissions are greatest. Based on this, we carry out important actions to reduce emissions. This is the responsible way to run factories, says Kamfjord.

ElkemElkem Salten has installed LaserGas II SP "in-situ" analyzers. These are mounted on the exhaust pipes and measures discharges directly and continuously without any external withdrawal of gas. The installation consists of a configured transmitter and receiver mounted diametrically opposite each other. Gas concentration is measured in average along the optical line.

The major advantages of laser measurements are the absence of contact and moving parts. Different components such as the spectroscopy, optics, electronics and software have to be top notch. Dealing with noise and optimal signals are essential in the quest for accurate results. Analyzers from NEO Monitors are TÜV-approved, which means they have passed stringent laboratory- and field tests.

– NEO Monitors is a modest company that oozes experience, quality and competence in all areas. We experience quick and good service and support, says Kamfjord. NEO Monitors list of measurable critical gases exceeds several bigger companies within this niche. The company has a wide selection of high quality analyzers for various gases in addition to NOx. On the list we find Oxygen, Ammonia, Hydrogen Chloride, Carbon Monoxide and more.

– Currently we are not under any governmental requirements related to our NOx emission, but we know that there will be new regulations imposed from 2017. Given this, we want to be the important step ahead. That said, we need no imposition for reducing our emissions. It is crucial for us to know what we do and how we affect the environment and society, says Kamfjord.

– In addition to gas analyzers, we have analyzers from NEO Monitors measuring the moisture content in our off gases. This is extremely important in terms of safety, since water leakages on our furnace equipment could create potential dangerous situations. This is an area that we take very seriously. We also consider a third type of analyzers that will give us important information about our dust emissions. If we go for this, it is no doubt that we will expand our portfolio of NEO Monitors' solutions, says Kamfjord.

**“DURING THE CAMPAIGN, ANALYZERS FROM NEO MONITORS EXCEEDED OUR EXPECTATIONS. WE CONDUCTED LONG TIME SERIES MEASUREMENTS AND WITH ACCURATE RESULTS”**

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