

Photovoltaic wafer characterisation and production support

NORNER is a leading independent technology centre with high expertise and advanced techniques within the photovoltaic segment

Industrial Impact

Solar energy has an important role in the present and future energy supply chain. The success of solar energy systems is based on highly advanced technology developments. These technologies are still maturing and need continuously optimisation and improvement.

Norner provides the competence and equipment to be a partner for technical support and testing for the solar industry.

Our scientific laboratories and scientists have the competence to provide reliable and advanced support on several critical steps within the wafer production. This includes material morphology, failure analysis, cutting slurry, SiC particles and regeneration/recycling processes. Norner has also expertise within packaging technology and logistic solutions for the wafers.

Norner Services

Silicon Carbide

Norner carries out characterisation of SiC particle size distribution, agglomeration, contamination and shape for optimising the cutting slurry performance.

Ingot and Wafer

Our microscopy lab provides investigations of morphology and composition of ingot, top cuts and wafers. We offer problem solving, identification of contaminations and inclusions as well as crystal grain size distribution.

Cutting fluid

To optimise the viscosity and performance of the cutting slurry, we carry out rheology analysis. In addition we can offer chemical analysis for degradation, decomposition and discolouration.

We execute advanced process studies in our Ex-proof reactor laboratory like gas/H₂ evolution in cutting slurry or ageing tests.

Norner Confidence

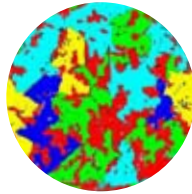
We strive to achieve a close cooperation with our customers in order to facilitate a good flow of information. All information regarding the product, production and use, is vital for how we select the test methods and final requirements. We have a high focus on meeting our customer needs.

Our team of material testing experts deliver structured and conclusive reports. We serve our customers in a personalised way and enjoy working with our international clients.

Norner's three business areas reflect our value chain approach:

Scientific Laboratory
Applied Research
Plastic Solutions

Norner is approved according to ISO 9001:2008.



Our Insight

Laboratory expertise

Highly specialised know-how, equipment and experience in microscopy investigations and advanced sample preparation of materials.

Multipurpose Ex-proof reactor laboratory and expertise in reactor setups and process studies for different industrial markets makes us able to develop new methods for various applications.

Industrial network

Extensive network of partners among laboratories and institutes enables fast and reliable services.

Norner is a competence centre for funded R&D applications in EU, national and regional schemes.

Packaging

Packaging, handling and distribution of wafers are critical. We have expertise in material selection, development and recycling of packaging.

Our Facilities

Microscope

- Scanning Electron Microscope
- EDS (EDAX Sapphire) - element detection and quantification
- Light microscopes with different contrast techniques

Size distribution

- Malvern - particle size distribution
- Molecular weight distribution

Chromatography

- Gas Chromatography and Mass spectrometry

Sample preparation

- Precision saw
- PEG slurry mixing
- Etching techniques

Viscosity/elasticity

- Rheology, Physica with rilled bobcup system

Explosion (EX) proof reactor laboratory

- The reactor laboratories consist of both glass and metal reactors with design temperature and pressures up to 340 °C and 350 bars depending on reactor type. Reactor volumes vary from 0.06-17L.

Other

- Durability testing (WOM, autoclave and chemicals)
- Fourier Transmission Infrared Spectrometer (Perkin Elmer)
- Image analysis tools (AnalySIS pro)

