	Characterisation lab	**ECN** **Characterisation from Si-ingot to modules**

Location of the infrastructure :	Petten, The Netherlands		
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Objectives :	Characterisation of ingots, wafers, cells and modules
Main features :	• Minority carrier lifetime on blocks and wafers (Sinton QSSPC) • Minority carrier lifetime mapping of wafers (Semilab μW-PCD) • Sheet resistance mapping of emitters (Sherescan) • Contact resistance between cell metalisation and emitter (Corescan) • Contact resistance between cell metalisation and emitter (TLM) • PL and EL (forward and reverse) on wafers and cells • Spectral response (integral) of cells • Reflection and transmission of various samples (with SR for IQE) • IQE-mapping at 4 λ-values (Semilab LBIC) • Shunt localisation with lock-in thermography (illuminated, dark forward, dark reverse) • IV-curve of cells (illuminated and dark, forward and reverse; continuous and flash) • Pseudo IV of cells (Sinton SunsVoc) • Spectroscopic ellipsometry on layers (as SiN) • Bond density measurements in layers such as SiNx:H (FTIR) • IV-curves of modules (flash)
Limitations or contraints :	Access to lab and facilities is allowed with technical and scientific assistance from ECN
Typical services or results :	Access to characterisation equipment in collaboration with technical and scientific assistance: new cells technologies and materials can be tested. Support will be provided to choose the relevant equipment and to analyze the resulting raw data.
Examples of research projects :	All projects that need electrical and optical characterisation of Si materials and cells and modules.