

Selective Solar Absorber

TOP: section of the innovative selective solar absorber with evidence of the different layers. BOTTOM: absorber coated on the vacuum solar receiver utilized in DIGESPO project, 12 mm external diameter.

DESCRIPTION

The selective absorber developed in FBK is a cost effective, highly efficient solution for small scale and medium temperature CSP systems. The nano-technology-based Cermet layer (ceramic-metal) is a 4 layers coating, 1 for anti-reflection in SiO2, 2 for selective solar absorber in TiO2 – Nb and 1 as IR reflecting in Mo.

SPECIFICATIONS

Compatible with working temperatures up to 300-325°C. The demonstrated efficiency values are:

- Absorbance: 0,94
- Emissivity: 0,08 at 350°C

ADVANTAGES & APPLICATIONS

The selective absorber can be applied to:

 SMALL SCALE CSP systems: modular 1-3 kWe, 3-9 kWth micro Combined Heat and Power (m-CHP).This CSP m-CHP will provide electrical power, heating and cooling for single and multiple domestic dwellings and other small commercial, industrial and public buildings.

RIFERIMENTI E LINK

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- INDUSTRIAL PROCESS HEAT
- SMALL to MEDIUM SIZE CSP FIELDS

STATUS

- TRL 6 technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies).
- The technology has been demonstrated for 18 months, installed in a demo plant in Malta, by ARROW PHARMA company, inside full scale solar receivers.
- Patented technology.



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