

Central Solar Tower Model

Authors : Elmo Thiago Lins Cöuras Ford, Valentina Alessandra Carvalho do Vale

Abstract : It is presented a model of two subsystems of Central Solar Tower to produce steam in applications to help in energy consumption. The first subsystem consists of 24 heliostats constructed of adaptive and mobile metal structures to track the apparent movement of the sun on its focus and covered by 96 layers of mirror of 150 mm at width and 220 mm at length, totaling an area of concentration of 3.2 m². Thereby obtaining optical parameters essential to reflection of sunlight by the reflector surface and absorption of this light by focus located in the light receiver, which is inserted in the second subsystem, which is at the top of a tower. The tower was built in galvanized iron able to support the absorber, and a gas cylinder to cool the equipment. The area illuminated by the sun was 9 x 10-2m2, yielding a concentration factor of 35.22. It will be shown the processes of manufacture and assembly of the Mini-Central Tower proposal, which has as main characteristics the construction and assembly facilities, in addition to reduced cost. Data of tests to produce water vapor parameters are presented and determined to diagnose the efficiency of the mini-solar central tower. It will be demonstrated the thermal, economic and material viability of the proposed system.

Keywords : solar oven, solar cooker, composite material, low cost, sustainable development

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