

# Capillarity solar cell encapsulation: a new vacuum-free, cost-effective encapsulation technique compatible with very thin String Ribbons

Frédéric Dross, Marco Antonio Pérez Lopez, Mauro Antonio Pérez Lopez, Aaron Smith, Ariane Labat, Rudolfo Raudez, Anna Bruce, Susan Kinne, Richard Komp  
 Grupo Fénix, Centro de Investigación, Promoción, y Producción con Energía Renovable, Universidad Nacional de Ingeniería, Managua, Nicaragua – www.grupofenix.org  
 IMEC v.z.w. Leuven, Belgium – frederic.dross@imec.be

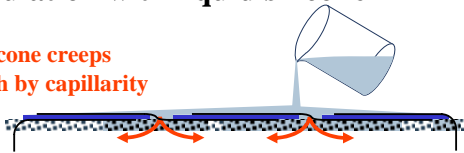
## Process

1. Evergreen Solar String Ribbon cells (120-150  $\mu\text{m}$  thin)
2. Positioning of cells face-up on a porous material



3. Cell encapsulation with liquid silicone

the silicone creeps underneath by capillarity



4. Glass positioning and string soldering

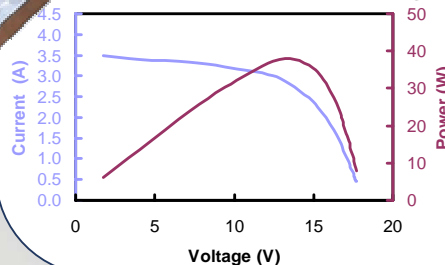


5. Framing and testing



## Advantages

- Vacuum-free, energy saving technique
- Reduced string manipulation (thin Si Ribbons)
- Availability of materials and energy in a developing country (here, Nicaragua)
- $V_{oc} = 18.6 \text{ V}$ ,  $J_{sc} = 3.5 \text{ A}$ ,  $P_{max} = 37.7 \text{ W}$  (natural sun, no cooling system,  $37^\circ\text{C}$  air temperature)
- UV stability of the encapsulant



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