# BACK SHEET – PET BASED SHEET

## 1.0 PARAMETERS:

1.1 Item : Laminated composite backsheet for photovoltaic module, The backsheet shall be of Three layered structure with Outer layer (air side) of fluoropolymer, Middle layer Polyester (PET) based and Inner layer (cell side) of UV resistant polymer sheet with additional layer of Aluminium also will be considered.

1.2 Application : As back cover for lamination of PV module along with EVA

## 2.0 TECHNICAL CHARACTERISTICS

| | | |
|---|---|---|
| 2.1 | Width (mm) | 985 ± 2 |
| 2.2 | Total Thickness (μ m) | > 300 |
| 2.3 | Outer layer (air side) Thickness (μ m) | ≥ 25 |
| 2.4 | Middle layer PET Thickness (μ m) | ≥ 200 |
| 2.5 | Inner layer (cell side) Thickness (μ m) | ≥ 75 |
| 2.6 | Colour | White |
| 2.7 | Adhesion Strength with EVA (N / cm) | > 40 |
| 2.8 | Tensile Strength @ max. load MD (MPa) | > 100 |
| 2.9 | Tensile Strength @ max. load TD (MPa) | > 100 |
| 2.10 | Elongation @ Break MD | > 100 % |
| 2.11 | Elongation @ Break TD | > 90 % |
| 2.12 | Thermal Shrinkage MD | < 1.5 % |
| 2.13 | Thermal Shrinkage TD | < 0.5 % |
| 2.14 | Moisture Vapor Transmission rate @ 38°C, 90%RH | < 2.0 g / $m^2$ / day |
| 2.15 | Dielectric Strength (kV) | ≥ 18 |
| 2.16 | Partial Discharge (V DC) | ≥ 1000 |

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## 3.0 PACKING CONDITIONS:

3.1 Backsheet roll shall be packed in aluminium foil / polythene cover to avoid possible air ingress material degradation.

3.2 Roll length : not more than 100 linear metres.

3.3 More than one backsheet joint is not allowed in each roll.

3.4 Two metres extra length of backsheet is to be provided if one joint is present in a roll.

3.5 Each and every Backsheet roll shall be packed in individual carton box.

3.6 Individual carton box shall be stacked in a pallet horizontally with adequate end support to the backsheet rolled winding tube to ensure that load is not passed on to backsheet roll.

3.7 Each roll shall have manufacturers label containing

i) Manufacturers Name
ii) Lot No
iii) Specification No. - BHEL / PS-901-02-0007
iv) Date of Manufacture
v) Date of Expiry
vi) Dimensions (Length, Width, Diameter)
vii) Quantity
viii) Weight

3.8 Final packing box shall have a label containing BHEL Purchase Order No. and Date.

3.9 Recommended storage condition shall be printed on each carton box and pallet.

3.10 Air side to be identified on the roll with printed letters.

## 4.0 TESTS:

4.1 Each lot must be accompanied with routine Test Certificate, for the parameters described in section 2.0, clause from 2.1 to 2.16.

4.2 Vendor has to provide valid type test report for Dielectric Strength and Thickness of each layers, certified with TUV / UL which shall be valid for five (5) year from the date of issue from lab.

## 5.0 INSPECTION AT BHEL:

5.1 Visual Inspection, Dimensional & Properties evaluation

5.2 Single Sampling Plan as per IS:10673-1983, Special Inspection Level S-4, AQL 1.0