



Kkalpana Industries (India) Limited

Process guidelines for uses of Medium Voltage Sioplas

a) Housekeeping:

Housekeeping is very important for any Medium Voltage Cable production.

- Cleanness of process area should be maintained.
- The Conductor empty drums for take up must be arranged in clean environment before line starts.
- Separate rooms (isolated changing area) should be arranged for Insulation and Semicon Compounds.
- Compounds are generally supplied in Octagon duly palletized. The polyethylene pallet cover should be removed just before changing of empty compound boxes. This will avoid contamination of material.

b) Drying system:

- Dehumidified drier for catalyst & semicon should start for proper drying of compound before line starts.
- Catalyst must be preheated @65/70 deg C for 4/5 hours in oven before machine starts (incase online dehumidified dryer is not available.)
- Semicon must be preheated @ 70 deg.C for 3/4 hours in oven before machine starts. (In case of dehumidifier drier is not available)

c) Tools selection:

- Tools should be for pressure extrusion technique to avoid any voids to appear in extruded core.
- In case of specific need consult machine & compound suppliers.

d) Extrusion parameter:

- For Kkalpana Insulation (XL09/XL10) extruder : Barrel zone 1 to 5 > 140,145,150,155,160 deg.C, Clamp/Neck > 160 deg.C. Head> 165 deg.C, Die> 170 deg.C.
- Insulation Extruder Screen pack (Wire mesh) - 1 x 40 & 1 x 60 to use.
- For Semicon (KI TPC 08) extruder : Inner semicon> 125,130,135,140,145,150 deg.C.
Outer semicon > 130,135,140,145, 150 deg.C.
- Semicon extruder Screen pack (Wire mesh) 1 X 60 to use.
- Before start of line, bleed only GP (KI XL09) without catalyst for getting smooth& clean flow.
- Once it achieved, start back to back premixed compound (XL09/XL10) Mixing must be in the ratio of 95 % of GP(XL 09) with 5 % of Catalyst MB (XL 10)
(Note: above temp. profile is for general guidelines only. Please adjust extruder temp. according to requirement (+/- 5 to 10 deg.C)).
- Cooling trough (1st 3 section) must be heated with hot water and temp. of hot water must be maintained at 60,55,50 deg.C throughout the run for gradient cooling of insulated core.



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e) Physical test:

- After core extrusion (before curing) hot silicon oil test must be done to check presence of contamination/voids in insulated core.
- The core should also be tested in laboratory in boiling water for hot set values to ensure that cure behavior is proper.

f) Post extrusion process:

- After extrusion of core, Insulated drum must be kept on floor for sufficient time to cool down the core properly.
- Then insulated drum should shift & kept to steam curing chamber for curing.
- For 11KV Cables - Curing chamber temp. @ 90 deg. C for 17/18 hours must be maintained.
- For 33 KV Cables – Curing chamber temp. @ 90 deg. C for 74/75 hours.

g) Steam Curing Chamber:

- Steam curing room can be made of Iron or Bricks but it should be well insulated (Glasswool/or suitable lagging material required) so that curing room temp. must be maintained as mentioned above.
- The room must be well pipelined from bottom /top/sidewall and steam should flow thoroughly inside the room from pipeline holes.
- Low pressure steam is required for curing chamber.
- Condensed water outlet to put at bottom.

Alternate curing process- Hot water dipping.

- Arrange to made underground water tank with proper heating elements& good earthing arrangements so that curing water temp. must be maintained throughout curing time.

h) Testing(Physical/Electrical):

- After curing of core, draw the sample from cured core and check the Hot set/P.set/Tensile/Elongation.
- After this test passed and after sufficient cooling down of cured core, copper tape the core and check HV/PD at core stage to check the healthiness of insulated core.
- Also do the hot silicon oil test in lab for checking contaminats/voids.

i) Further process:

- Once the core passed in Electrical/Physical tests, go ahead for final process of all insulated core and again do the final tests before dispatch of finished cable.

This information given in the document is believed to be reliable and is given in good faith but without warranty.
For any further question on the subject matter, please contact us immediately.