

SPECIFICATION FOR LOW DENSITY POLYETHYLENE NATURAL

1. Nomenclature- Low density polyethylene (LDPE) Natural
2. Use: This material is used for insulation of bare conduction of CQ cable
3. Relevant Specification: MSCQ-1R and CQAL- 593
4. Physical Condition: LDPE shall be supplied in bags. It shall consist of granules of uniform quality and size and shall be free from any impurities. It shall be supplied in natural colour. IT should be heat stabilised non oxidising compound.
5. Tests: LDPE shall meet following properties:
 - a) Tensile strength: minimum 1.06 kg/mm^2
 - b) Elongation before ageing : Minimum 300%
 - c) Elongation after ageing : Minimum 274%
 - d) Melt flow index: 0.80 to 2.10
 - e) Density: 0.91 to 0.925 gms/cc
 - f) Ageing Test at $80^{\circ}\text{C} \pm 1^{\circ}\text{C}$ for 7 days: There shall be no crack and break
 - g) Heat test: Specimen of insulated conductor shall be wound tightly on itself for five close turns. The ends shall be securely taped. The specimen shall then be placed in air oven maintained at $95 \pm 1^{\circ}\text{C}$ for one hour. There shall be no evidence of cracking of insulation when examined under magnifying glass of focal length 80 mm.
 - h) Cold bend test Before ageing: a sample of insulated conductor shall be bent closely wound on a mandrel of diameter $2.0 \pm 0.1 \text{ mm}$ under the following condition-
 - i) The temperature of insulated conductor and mandrel at the time of testing shall be $(-) 40^{\circ}\text{C} \pm 1^{\circ}\text{C}$ and shall have been at that temperature for 24 hour before the test.
 - ii) The insulated conductor shall be wound in five close turns around the mandrel.

There shall be no sign of cracks or splits when examined under magnifying glass of focal length 80mm.

- i) Cold bend test after ageing: a sample of insulated conductor shall be bent closely wound on a mandrel of diameter $2.0 \pm 0.1 \text{ mm}$ under the following condition-
 - I) The temperature of insulated conductor and mandrel at the time of testing shall be $(-) 40^{\circ}\text{C} \pm 1^{\circ}\text{C}$ and shall have been at that temperature for 24 hour before the test.
 - II) The insulated conductor shall be wound in five close turns around the mandrel.

There shall be no sign of cracks or splits when examined under magnifying glass of focal length 80mm.

- j) IR test on insulated conductor : IR Obtained should not be less than $75000 \text{ M}\Omega/\text{km}$.
- k) Tensile strength and elongation before ageing at $80^{\circ}\text{C} \pm 1^{\circ}\text{C}$ for 7 days followed by cooling period of 24 hours shall be as follows:

Ultimate Tensile strength : minimum 10.34 N/mm^2
Elongation: minimum 300%

- l) Tensile strength and elongation after ageing at $80^{\circ}\text{C} \pm 1^{\circ}\text{C}$ for 7 days followed by cooling period of 24 hours shall be as follows:

Ultimate Tensile strength : minimum 8.27 N/mm^2
Elongation: minimum 274%

6. Packing shall be able to withstand all transit hazard and handling.
7. OCFC representative shall seal a sample QTY 50 Kg i.e two bags from each of the batches tendered for inspection which shall be sent to OCFC directly for practical trials and test which may take about 20 days. The supplier is at liberty to associate its own representative during trial.
8. The final clearance to dispatch the inspected lot shall be given only after acceptable result from above test.
9. However OCFC reserves the right to inspect upon receipt of the consignment and the firm is not absolved of responsibility to supply the material as per specification.

VETTED
OCF QA/DRG. OFFICE