



NATIONAL PETROCHEMICAL COMPANY STANDARDS

MATERIAL STANDARD

FOR
CABLES & WIRES

NPCS-MS- EL-06

REVISION : 0



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1 SCOPE

- 1.1 The intent of this standard is to define the minimum requirements for the design, manufacture, testing, packing and supply of electrical wires, power, control and telephone cables for use in petrochemical plants.
- 1.2 Site conditions and system conditions shall be as what will be specified in material requisition.
- 1.3 Cables and wires shall comply with the requirements of the following documents listed in order of precedence :
- a) Purchase order.
 - b) This standard,
 - c) Other specifications and standards referred to.
- 1.4 All documentation shall be issued, using "SI" metric system of measurement, according to NPCS-ES-GN-03.
- 1.5 English language shall be used for all correspondence documents, catalogues, drawings and nameplates.
- 1.6 In this standard, purchaser means National Petrochemical Company of Iran, "NPC" .

2 STANDARDS AND CODES

The cables and wires shall be constructed and tested in accordance with all applicable sections of the ' latest below listed standards and codes.

2.1 FOR CABLES AND WIRES MANUFACTURED IN EUROPE

- IEC International Electrotechnical Commission.
- IEC 227 PVC Insulated Cables Up to and Including 450/750 V.
- IEC 228 Conductor of Insulated Cables.

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IEC 502

Extruded Solid
Dielectric Insulated
Power Cables, 1 KV to
30 KV ,

IEC 811

Common Test Methods
for Insulating and
Sheathing Materials of
Electric Cables.

2.2

FOR CABLES AND WIRES MANUFACTURED IN USA

- IPCEA

Insulated Power Cable
Engineers Association

2.3

For cable and wire manufactured outside Europe and
USA, either the standards and codes specified in
Clauses 2.1 or 2.2 shall be met.

2.4

The cables as a whole may conform with the national
standards of the country of manufacturer, provided
these standards are based on the IEC recommendations
Vendor shall state in the quotation the standards to
which the cable conforms. If these are the national
standards, then vendor shall state in the
quotation, the deviations, if any, from the relevant
IEC recommendations.

3

SERVICE CONDITIONS

All cables shall be suitable for use in
petrochemical plants, run above ground on cable
tray/rack or underground in cable trenches with
uncontrolled backfill and possibility of flooding by
water.

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4 DESIGN REQUIREMENTS

4.1 MEDIUM VOLTAGE CABLES

4.1.1 Configuration

Cables shall be cross-linked polyethylene (XLPE) insulated, screened, Steel wire armoured and PVC jacket.

4.1 Conductors

Conductors of cables shall be circular stranded annealed Copper, manufactured of Copper for electrical purposes.

4.1.3 Screen

Conductor screen shall consist of extruded semiconducting cross-linked polyethylene.

4.1.4 Armour

The armour shall be single-layer galvanized round or flat Steel wire.

4.1.5 Design Properties

The conductor properties and insulation, filler, binder, sheath, armouring and oversheath shall conform to the applicable sections of the referenced standards and codes herein.

4.2 600 V/1000 V CABLES

4.2.1 Configuration

The following type of low voltage cables may be used; this will be specified in requisition:

- a) Cross linked Polyethylene (XLPE) insulated, Steel wire armoured and PVC jacket.
- b) Polyvinyl Chloride (PVC) insulated, Steel wire armoured and PVC jacket.
- c) PVC insulated Copper conductor, PVC jacket for installation in rigid Steel galvanized conduit.

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