

Check-list for Inspection of Prime quality CRGO for Transformers/Reactors

During inspection of PRIME CRGO, the following points needs to be checked by the Transformer/reactor manufacturer. POWERGRID inspector shall verify all these points during inspection:-

A) In case PRIME CRGO cutting is at works of Transformer Manufacturer:

1 Review of documents:

- Purchase Order (unpriced) to PRIME CRGO supplier/Authorised Agency
- Manufacturer's test certificate
- Invoice of the Supplier
- Packing List
- Bill of Lading
- Bill of Entry Certificate by Customs Deptt.
- Reconciliation Statement as per format below
- Certificate of Origin
- BIS Certification

Format for Reconciliation/Traceability records

Packing List No./date /Quantity of PRIME CRGO received
Name of Manufacturer
Manufacturer test certificate No./date

Serial No.	Details of Package/Job	Drawing Reference	Quantity involved	Cumulative Quantity Consumed	Balance in Stock

2.1 Inspection of PRIME CRGO Coils: - CIP

- a. PRIME CRGO-Manufacturer's Identification Slip on PRIME CRGO Coils
- b. Visual Inspection of PRIME CRGO Coils offered as per packing list (for verification of coil details as per Test certificate & healthiness of packaging).
- c. Unique numbering inside of each sample of PRIME CRGO coil and verification of records to be maintained in the register for consumption of CRGO coil.
- d. ISI logo sticker on packed mother coil and ISI logo in Material TC.

2.2. During inspection of PRIME CRGO, testing of sample shall be carried out for Thickness, Stacking Factor, Permeability, Specific watt loss, Ageing test, Surface insulation resistivity and Bend property test as per relevant IS/ IEC standard, Tech. Spec., MQP and Transformer manufacturer plant standard.



3 **Inspection of PRIME CRGO laminations: CIP**

Inspection will comprise of review of traceability to prime CRGO coils, visual, dimensional checks of CRGO laminations and burr/bow measurement etc. Inspection record and traceability documents will be reviewed by POWERGRID during issue of CIP.

4. **Inspection at the time of core building: - CIP**

Visual Inspection of PRIME CRGO laminations. Samples shall be taken for tests mentioned in A.2.2 above.

Above tests shall be witnessed by POWERGRID. In case testing facilities are not available at Manufacturer's work, the sample(s) sealed by POWERGRID to be sent to approved labs for testing.

B) In case PRIME CRGO cutting is at Sub-vendor of Transformer Manufacturer:

1 Review of documents:

- Purchase Order (unpriced) to PRIME CRGO supplier/ Authorised Agency
- Purchase Order (unpriced) to Core Cutter
- Manufacturer test certificate
- Invoice of the Supplier
- Packing List
- Bill of Lading
- Bill of Entry Certificate by Customs Deptt.
- Reconciliation Statement as per format below
- Certificate of origin
- BIS Certification

Format for Traceability records as below:-

Packing List No./date /Quantity of PRIME CRGO received

Name of Manufacturer

Manufacturer test certificate No./date

Serial No.	Name of Customer	Details of Package/Job	Drawing Reference	Quantity involved	Cumulative Quantity Consumed	Balance in Stock	Dispatch details

2.1 Inspection of PRIME CRGO Coils: - CIP

- PRIME CRGO-Manufacturer's Identification Slip on PRIME CRGO Coils**
- Visual Inspection of PRIME CRGO Coils offered as per packing list (for verification of coil details as per Test certificate & healthiness of packaging).**
- Unique numbering inside of each sample of PRIME CRGO coil and verification of records to be maintained in the register for consumption of CRGO coil.**
- ISI logo sticker on packed mother coil and ISI logo in Material TC.**



- 2.2. During inspection of PRIME CRGO, testing of sample shall be carried out for Thickness, Stacking Factor, Permeability, Specific watt loss, Ageing test, Surface insulation resistivity and Bend property test as per relevant IS/ IEC standard, Tech. Spec., MQP and Transformer manufacturer plant standard.

3 Inspection of PRIME CRGO laminations: - CIP

Inspection will comprise of review of traceability to prime CRGO coils, visual, dimensional checks of CRGO laminations and burr/bow measurement etc. Inspection record and traceability documents will be reviewed by POWERGRID during issue of CIP.

4 Inspection at the time of core building: - CIP

Visual Inspection of PRIME CRGO laminations. Samples shall be taken for tests mentioned in A.2.2 above.

C) General

If a surveillance sample is drawn and sent to TPL (if testing facility not available with the manufacturer), the Transformer manufacturer can continue manufacturing at their own risk and cost pending TPL test report on PRIME CRGO sample drawn. Decision for acceptance of PRIME CRGO shall be based upon report of the sample drawn.

These checks shall be read in-conjunction with approved MQP and POWERGRID specification and conditions of contract.

Sampling Plan (PRIME CRGO)

765/ 400 / 220 / 132	-Each Transformer/reactor
66 / 33 / 11 kV	-1 st transformer and subsequently at random 10% of Transformers (min. 1) offered for inspection.
DTs and other ratings	-1st transformer and subsequently at random 2% of Transformers (min. 1) offered for inspection.

❖ (One sample for each lot of CRGO shall be drawn on surveillance basis.)

D. NOTE:-

- In case of Domain Refined CRGO material, where CRGO testing (Specific core loss & magnetic permeability) being carried out by SST method during core building stage with sample size (500mm*500mm) is not possible, same shall be carried out during CRGO Slitting/Lamination stage.
- Transformer Manufacturer to ensure that PRIME CRGO is procured from POWERGRID approved vendors and CRGO manufacturer should have valid BIS Certificate for respective offered Grade.
- Transformer Manufacturer should also involve themselves for ensuring the quality of CRGO laminations at their Core Cutter's works. They should visit the works of their Core cutter and carry out necessary checks

