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Electricity Specification 400C26

Issue 2 December 2021

Compound for use with Solid Cable Accessories up to 33kV

Amendment Summary

ISSUE NO. DATE	DESCRIPTION
Issue 2 **December 2021**	The new template for Engineering Specification Documents has been applied. All information has been reviewed and updated where appropriate. Specification references updated Prepared by: Philip Howell Approved by: Policy Approval Panel and signed on its behalf by Steve Cox, Engineering and Technical Director

Contents

1 Introduction

This Specification covers the supply of semi-fluid oil Compounds for 33kV Solid Type Cable Accessories used on the electricity distribution network (Network) owned by Electricity North West Limited, as Distribution Licensee, herein referred to as Electricity North West.

2 Scope

This specification determines the chemical, physical and electrical characteristics, packaging and sample tests for compounds suitable for use as a filling in accessories used for 33kV solid insulation type cables designed for use with semi-fluid compounds.

3 Definitions

Approval	Sanction by the Electricity North West Circuits Policy Manager that specified criteria have been satisfied
Contract	The agreement between Electricity North West and the Contractor for the execution of the Works including therein all documents to which reference may properly be made in order to ascertain the rights and obligations of the parties under the said agreement.
Contractor	The person or person's firm or company, including personal representatives, successors and permitted assigns, who's Tender has been accepted by Electricity North West.
Specification	The Specifications and schedules (if any) agreed by the parties for the purpose of the Contract.
Supplier	Any person or person's firm or company who supplies goods to Electricity North West or to its Contractor.
Tender	An offer in writing to execute work or supply goods at a fixed price.
Tenderer	The person or person's firm or company, including personal representatives, successors and permitted assigns, invited by Electricity North West to submit a Tender.

4 General Requirements for Approvals and Testing

4.1 Product not to be Changed

No change in the product, packaging or labelling shall be made after Approval has been granted without prior notice to the Electricity North West Circuits Policy Manager, and receipt of a written agreement to the proposed change from the Electricity North West Circuits Policy Manager.

4.2 Electricity North West Technical Approval

The Tenderer shall submit, with this Tender, proposals for testing which will demonstrate, to the satisfaction of the Electricity North West Circuits Policy Manager, compliance with this Specification. Such tests shall be carried out without expense to Electricity North West.

Alternatively, technical reports and other data may be submitted that the Tenderer considers will demonstrate, to the satisfaction of the Electricity North West Circuits Policy Manager, compliance with this Specification. Acceptance of this evidence shall be at the discretion of the Electricity North West Circuits Policy Manager but will not be unreasonably withheld.

Approval shall be 'factory specific' and is not transferable to another factory without the written Approval of the Electricity North West Circuits Policy Manager.

The Supplier and product shall comply with all the relevant requirements of Electricity North West document CP311.

4.3 Quality Assurance

The Tenderer shall confirm whether or not Approval is held in accordance with a quality assurance scheme accredited under ISO 9000. If not, the Tenderer shall submit a statement of the quality assurance procedures employed to control the quality of the product, including the performance of Suppliers and Sub-Contractors.

The right is reserved for the repeat of such tests, from time to time, that the Electricity North West Circuits Policy Manager may deem to be reasonably necessary to demonstrate continued compliance with the Specification.

The Tenderer shall submit, with the Tender, a list of tests and inspections which are carried out on the product prior to despatch which shall demonstrate, to the satisfaction of the Electricity North West Circuits Policy Manager, fitness for installation and service.

The Tenderer shall provide free of charge to Electricity North West such samples as may, in the opinion of the Electricity North West Circuits Policy Manager, be reasonably required for inspection and/or retention as quality control samples. The Electricity North West Circuits Policy Manager will confirm the requirement for samples at the time of Tendering.

The right is reserved for inspections to be made of Tenderer's facilities, from time to time, as deemed reasonably necessary by the Electricity North West Circuits Policy Manager to ensure compliance with this Specification and any Contract of which it forms a part.

The Tenderer shall submit, with the Tender, such details of product packaging disposal, as will enable Electricity North West to comply with the requirements of BS EN ISO 14001 - Environmental Management Systems.

4.4 Formulation

The Tenderer shall submit, with the Tender, such details of the formulation and use of the product and associated substances as will enable Electricity North West to comply with the obligations of the Health and Safety at Work Act 1974 and the Control of Substances Hazardous to Health Regulations 2002, in the use, storage and disposal of the product. The Tenderer may stipulate, prior to submission of such information,

that it is to remain confidential, and the Electricity North West Circuits Policy Manager will, if requested, confirm agreement to this prior to receipt of the information.

4.5 Identification Markings

The Tenderer shall submit, with the Tender, details of markings which it is proposed to apply to the product or packaging to identify manufacturing batches or items. The forms and content of such markings shall be subject to the Approval of the Electricity North West Circuits Policy Manager and shall in all cases include the Electricity North West approved description and commodity code number.

The Tenderer shall submit, with the Tender, such details of marking gross weight on components, assemblies and packages, as will enable Electricity North West to comply with the Health and Safety Manual Handling Operation Regulations 1992, for components, assemblies and packages supplied with a gross weight over 1kg. The forms and content of such markings shall be subject to the Approval of the Electricity North West Circuits Policy Manager.

4.6 Minimum Life Expectancy

The minimum life expectancy of this product is 60 years when installed on accessories installed on the network with working voltages up to 33kV.

4.7 Product Conformity

Preference will be given to those Suppliers who can provide suitable product conformity certification to a recognised or specified standard, or an equivalent certification.

4.8 Confirmation of Conformance

The Tenderer shall complete the conformance declaration sheets in Appendix A. Failure to complete these declaration sheets may result in an unacceptable bid.

5 Requirements for Type and Routine Testing

The Electricity North West Circuits Policy Manager shall set out the requirement of the following tests to be carried out by the Supplier at the Supplier's cost.

5.1 Requirement for Type Tests at Suppliers Premises

Not applicable for this product.

5.2 Requirement for Routine Tests at the Supplier's Premises

These tests may be required to be carried out on every individual unit or component, as specified, or at some regular frequency to be determined by the Electricity North West Circuits Policy Manager.

The results of these tests may be required to be supplied to Electricity North West with each unit purchased or retained for inspection, at a period to be determined by the Electricity North West Circuits Policy Manager.

6 Technical Particulars

6.1 General Requirements

- The compound shall comply with ENA-TS 12-12 Issue 2 : 1999 - "Compounds for use with 33kv Solid Type Cable Accessories"
- The compound shall be suitable for pouring between the temperatures 105^0C to 125^0C.

6.2 Electrical Characteristics

- The compound shall have a minimum dielectric withstand of 30 kV for 1 minute when tested to BS1858
- Power Factor at 60^0C should be 0.005 maximum

6.3 Physical Characteristics

- The compound shall have a specific gravity of 0.97 to 1.03 g/cm^3 at 20^0C
- The thermal expansion coefficient per ^{0}C shall be 0.0008 maximum
- The flashpoint when measured in accordance with BS EN 22719 shall be 200^0C minimum
- The viscosity shall be 400 – 2000 m^2/s when determined in acordance with BS 2000 : PT71 @ 60^0C

6.4 Chemical Characteristics

- The moisture content shall be no more than 0.001%
- The compound shall be compatible with all materials used in cable conductors , sheaths and impregnants which are found in paper insulated cables up to 33kV.

6.5 Packaging

- The compound shall be supplied in air-tight metal tins preferably 25 litre (20Kg) capacity. Other sizes will, however be considered.
- The following information should be provided on a label affixed to each tin ;
    - Name of manufacturer
    - Product Type
    - Recommended pouring temperature in ^{0}C
    - Gross weight of tin in kgs
    - Volume of contents in litres
    - Batch number for traceability
    - Date of packaging

6.6 Routine Production Testing

- Suppliers will required to forward test certificates upon request (to the Electricity North West office which ordered the compound) in accordance with Section 5 of ESI 12-12

7 Documents Referenced

All references to documents listed below are to the latest versions, unless stated otherwise

DOCUMENTS REFERENCED	
Health and Safety at Work Etc Act 1974.	
Control of Substances Hazardous to Health Regulations 2002.	
Manual Handling Operations Regulation 1992.	
BS EN ISO 9000	Quality management systems.
BS EN ISO 14001: 2004	Environmental Management Systems.
ENA-TS 12-12	Compounds for use in 33kV in accessories for MIND and Rosin oil paper insulated cable accessories
BS EN 22719	Petroleum products and lubricants -determination of flash point
BS 1858	Specification for Bitumen based compounds for electrical purposes
BS 2000	PT71 Methods of Test for petroleum and its products – determination of kinematic viscosity and calculation of dynamic viscosity
CP311	Approval Policy and Process

8 Keywords

Compound Hot Pour Insulating

Appendix A – Scope of Materials

The following equipment is currently approved for use on Electricity North West Network.

ITEM NO.		COMMODITY CODE
1	**Type G38 Oil based compound, 20kg tin**	**158543**

Appendix B – Conformance Declaration

SECTION-BY-SECTION CONFORMANCE WITH SPECIFICATION

The Tenderer shall declare conformance or otherwise for each product/service or range of products/services, section-by-section, using the following Conformance Declaration Codes.

Conformance Declaration Codes:

N/A =	Clause is not applicable/appropriate to the product/service.
C1 =	The product/service conforms fully with the requirements of this clause.
C2 =	The product/service conforms partially with the requirements of this clause.
C3 =	The product/service does not conform to the requirements of this clause.
C4 =	The product/service does not currently conform to the requirements of this clause, but the manufacturer proposes to modify and test the product in order to conform.

Manufacturer:

Product/Service Description:

Product/Service Reference:

Name:

Company:

Signature:

SECTION-BY-SECTION CONFORMANCE			
Section	**Section Topic**	**Conformance Declaration Code**	**Remarks * (must be completed if code is not C1)**
1	**Introduction**		
2	**Scope**		
4.1	**Product not to be Changed**		
4.2	**Electricity North West Technical Approval**		
4.3	**Quality Assurance**		
4.4	**Formulation**		
4.5	**Identification Markings**		
4.6	**Minimum Life Expectancy**		
4.7	**Product Conformity**		
4.8	**Confirmation of Conformance**		
5.1	**Requirements for Type Tests at the Supplier's Premises**		
5.2	**Requirement for Routine Tests at the Supplier's Premises**		
6.1	**General Characteristics**		
6.2	**Electrical Characteristics**		
6.3	**Physical Characteristics**		

6.4	**Chemical Characteristics**		
6.5	**Packaging**		
6.6	**Routine Production Testing**		

* Applicable specifications shall be stated in the Remarks column where alternatives are quoted within a section. The Remarks column shall also be used to indicate cases where the products or services exceed the quoted specifications.