

RURAL ELECTRIFICATION AGENCY



REA TECHNICAL SPECIFICATION FOR TREATED GUM CROSS-ARMS 11 AND 33 kV

TECHNICAL SPECIFICATION

1. Introduction

The supply to the Agency of transmission wood-poles and cross-arms is covered by SAZS 120:1990 which is at the Standards Association of Zimbabwe, P.O. Box 2259, Harare.

Unless otherwise stated, any reference to a specification quoted herein must be interpreted to imply SAZS 120:1990. A copy of this Standard is attached as Appendix 1. This Specification in accordance with Section II, covers specified points to be stated, and also additional Agency requirements.

The Supplier shall state name, place and Estate of growth.

The Supplier shall state compliance or non compliance with SAZS 120:1990 inclusive of amendments of January 1993, for all clauses from clause 6.7.2 except clauses 3.8.2.5 to clause 3.8.2.7

2 Standards, Units and Language

All tenders correspondence and all description upon drawings, illustrations or instructions shall be in unambiguous English Language. SI units of weights and measurements shall be used throughout. The poles and cross-arms shall all be tagged with Certification mark of the Standards Association of Zimbabwe. The specification covers quality requirements for Eucalyptus poles grown in Southern Africa, that are treated with creosote, a mixture of creosote and waxy oil, and are intended to be used

as upright supports and cross arms for power distribution lines and associated equipment.

3 **Strength Group and Species**

- a) The Eucalyptus species quoted in Table 1 in SAZS 120:1990, are acceptable to the Agency, preferably in strength groups in the order given, but all being subject to prior approval. Cross-arm strength however, must be group AA.
- b) Tenderers are required to state the species, approximate average age and the area where grown, i.e. the Estate and Section, of the trees from which poles and cross-arms are to be provided.
- c) The classification of strength groups from Foresters must be acceptable by the Standards Association of Zimbabwe. In the absence of such approval, or incomplete information as required in sub-paragraph (b) above, poles may be accepted as group B only.

4 **Banding**

Poles and cross-arms must be banded by the use of galvanised steel strapping, secured by galvanised nails, as standard practice. Particular cross-arms, however, are purchased which require a firmly crimped steel ferrule. The use, of any alternative banding is subject to prior approval.

Banding shall be in accordance with method 3.8.2.1 of 3.8.2 of SAZ:120:1990. Banding of poles to be treated with creosote mixtures shall be carried out before impregnation. The coatings of the galvanised wires shall comply with the requirements for galvanising coating of SAZ 284 or BS 729.

5 **Cross-Arms**

Crossarms shall be supplied with ends cut square, and to length and diameters in accordance with stated Tender requirements, and REF Drawings where applicable.

6 Supplementary Requirements

6.1 Preparation of Timber

- a) Trees shall be barked immediately after felling. Bark is to be removed completely leaving no strands of inner bark on the stem.
- b) Felled trees are not to be cross-cut, but the crown and upper part of the stem shall be removed provided the upper part of the stem removed does not exceed 100 mm in diameter. All excessive protruberances shall be removed immediately with a clean cut, flush with the stem.
- c) Incisions made by axes, barking and other cutting tools cause affected outer layers to rupture and peel off in service, therefore poles damaged in this manner will be rejected.
- d) Poles with occluded bark within 2 metres of the butt and at other points where it is likely to impair impregnation, will be rejected.

6.2 Seasoning

- a) Felled trees shall be left lying in the plantations under shade in such a manner that each tree is lying free and adequately supported clear of the ground to avoid sweep.
- b) Where it is desired to remove felled trees from the plantation to elsewhere, they must be open stacked in shade. This shade must be open to free air movement.
- c) Felled trees shall be left lying or stacked for at least five months before cutting to length, unless an alternative method has been specifically approved by the Agency.

7 Preservative Treatment

7.1 General

Immediately prior to treatment the moisture content shall not be more than 25% based on the oven-dry method described in Clause 6.4.3 of SAZS 120:1990

7.2 Preservative

- a) High temperature Creosote, preferably to the American Wood Preserver's Association Specification shall be used. This shall be mixed with 20 diesel fuel oil.
- b) Other-types of Creosote may be considered and only to be used after approval by the Agency.
- c) When called for, samples of Creosote and diesel Fuel 011 to be used in the preservative process shall be submitted to the Agency for purposes of analysis.

7.3 **Process**

- a) Impregnation shall be carried out by the full cell pressure process.
- b) Details of the process shall be submitted to the Agency with the bid and a factory inspection will be carried out during evaluation.

7.4 **Type Of Preservative Required**

The type of preservative required shall be one of the following types:-

- a) Creosote that complies with SABS 539
- b) Creosote that complies with SAZS 120:1990, clause 3.9.2.1

7.6 **Inspection Report**

Treatment charge sheets including sample tests must be submitted for each batch of poles or cross-arms.

8. **Production Capability/ Award Criteria**

Bidders shall state their production capability per year for each size of wood-pole. REF will evoke penalty charges for poor delivery as per REF General Conditions of Contract. The successful Bidder shall be capable of supplying at least one twelfth of the required quantities per month.

9. **SCHEDULES OF TECHNICAL GUARANTEES**

Bidder is required to fill in the Schedule of Technical Guarantees below. Failure to do so will lead to rejection of the bid.

Table A: Technical Guarantee Schedules Wood-poles

| Item | Description | Unit | Guaranteed Data 33kV Cross Arm | Guaranteed Data 11kV Cross Arm |
|------|--|--------|--------------------------------|--------------------------------|
| 1 | Cross-arm length | mm | | |
| 2 | Wood Specie | | | |
| 3 | Seasoning Method | | | |
| 4 | Type of Preservative | | | |
| 5 | Impregnation Process Type | | | |
| 6 | Average Depth of Preservative Penetration | mm | | |
| 7 | Moisture Content $\leq 25\%$ | % | | |
| 8 | Diameter of Drilled Holes | mm | | |
| 9 | Steel Ferrule Banding | Yes/No | | |
| 10 | Production Capacity Per Year | Yes/No | | |
| 11 | Details of Treatment Process Provided | - | | |
| 12 | Manufacturer | - | | |
| 13 | Quality Standard Certification of Manufacturer | - | | |