



Kenya Power

TITLE:

**SPECIFICATION FOR
PERSONAL PROTECTIVE
EQUIPMENT - PROTECTIVE
CLOTHING**

Part 1: Overalls

Doc. No.

KP1/6C/13/TSP/01/025-1

Issue No.

2

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0.1 Circulation List

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Issue 1 Rev 0	2012-12-17	New Issue	S. Kimitei	G. Owuor
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FOREWORD

This specification has been prepared by the Standards Department in collaboration with Human Resource Services Department; Safety, Health & Environment Department (SHE) of The Kenya Power and Lighting Company Limited (KPLC/Kenya Power) and The Kenya Electrical Trade & Allied Workers Union (KETAWU). The specification lays down requirements for Overalls. It is intended for use by Kenya Power in purchasing these overalls.

The supplier shall submit information which confirms satisfactory service experience with products which fall within the scope of this specification

1. SCOPE

- 1.1. This document specifies the design and performance, methods of test, marking and user information for overalls for use in Industrial Work (Electrical and Mechanical) by Kenya Power company employees.
- 1.2. The specification covers performance requirements for the overalls made from flexible materials, which are designed to protect the wearer's body, except the hands, from heat, flame, and chemical substances. This shall include:
 - a) Ordinary overall conforming to ISO 20471, ISO 11612, BS EN 1149
 - b) Acid proof overalls conforming to ISO 20471, BS EN 14325
- 1.3. The specification stipulates the minimum requirements for the overalls in the company and it shall be the responsibility of the supplier to ensure adequacy of the design, good engineering practice, adherence to the specification and applicable standards and regulations as well as ensuring good workmanship in the manufacture of the items for The Kenya Power & Lighting Company.
- 1.4. The specification does not purport to include all the necessary provisions of a contract.

2.0. REFERENCES

The following standards contain provisions which, through reference in this text constitute provisions of this specification. Unless otherwise stated, the latest editions (including amendments) apply.

ISO 20471: High visibility clothing -- Test methods and requirements

ISO 11612: Protective clothing -- Clothing to protect against heat and flame

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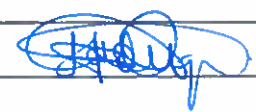

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- ISO 105: Textiles -- Tests for colour fastness -- Part B02: Colour fastness to artificial light: Xenon arc fading lamp test; -- Part E04: Colour fastness to perspiration
- BS EN 340: Protective clothing: General requirements
- BS EN 1149: Protective clothing. Electrostatic properties. --Part 3-Test methods for measurement of charge decay.
- BS EN 14325: Protective clothing against chemicals. Test methods and performance classification of chemical protective clothing materials, seams, joins and assemblages
- BS EN 1413: Textiles. Determination of pH of aqueous extract
- BS EN 14362-1: Textiles. Methods for determination of certain aromatic amines derived from azo colorants. Detection of the use of certain azo colorants accessible with and without extracting the fibres
- BS EN 13402-2: Size designation of clothes. Primary and secondary dimensions
- KNWA 2409-7: Health care wastes management commodities Part 7: Overall clothings Specification
- KS 836-2: Classification and terminology of stitches and seams — Part 2: Seam types.
- KS 836-1: Classification and terminology of stitches and seams Part 1: Types – Ready-made garments.
- KS ISO 13935-1: Textiles -- Seam tensile properties of fabrics and made-up textile articles -- Part 1: Determination of maximum force to seam rupture using the strip method

3.0. TERMS AND DEFINITIONS

- 3.1. The definitions given in the reference standard shall apply.
- 3.2. Kenya Power Logo – As per sample available with Human Resource & Administration Division, Kenya Power.

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4.0. REQUIREMENTS

4.1. Operating Conditions

The Overalls shall be suitable for use in Electrical and Mechanical Work, outdoors in tropical climate with temperatures between -1 to +45 degrees Centigrade.

4.2. General Requirements for Overalls

- 4.2.1. The overalls shall be designed, manufactured and tested in accordance with KNWA 2409-7, ISO 11612, BS EN 1149, BS EN 14325 and BS EN 340.
- 4.2.2. The material, design, innocuousness, comfort and ageing of the overalls in this specification shall conform to the requirements of BS EN 340 for protective clothing.
- 4.2.3. The overalls shall not adversely affect the health or hygiene of the user and shall be made of materials such as textiles that have been shown to be chemically suitable.
- 4.2.4. The materials shall not in the foreseeable conditions of normal use release or degrade to release substances generally known to be toxic, carcinogenic, mutagenic, allergenic, toxic to reproduction or otherwise harmful. Information claiming that the product is innocuous shall be checked.
- 4.2.5. Materials for the manufacture of overalls shall comply with the following requirements:
 - a) All metallic materials which could come into prolonged contact with the skin (e.g. studs, fittings) shall have an emission of nickel of less than 0.5 µg/cm² per week. The method of test shall be according to BS EN 1811.
 - b) The pH value for protective clothing material shall be greater than 3.5 and less than 9.5. The test method shall be materials according to BS EN 1413.
 - c) The colour fastness to perspiration of protective clothing material to ensure user hygiene (e.g. no skin staining) shall be determined in accordance with ISO 105-A02 and shall be at least grade 4 of the Grey scale for the colour change of the specimen. The test shall be conducted in accordance with ISO 105-E04.
 - d) Azo colorants which release carcinogenic amines listed in EN 14362-1 shall not be detectable by the method in that standard.
- 4.2.6. Overall design shall provide users with a level of comfort consistent with the level of protection against hazard which is provided, the ambient conditions, the level of the user's activity, and the anticipated duration of use of the protective clothing. The finished overall shall not:

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- a) Have rough, sharp or hard surfaces that irritate or injure the user;
- b) Be so tight that blood flow is restricted;
- c) Be so loose and/or heavy so that it interferes with movements.

4.2.7. Overalls that impose significant ergonomic burdens such as heat stress, or is inherently uncomfortable because of the need to provide adequate protection, should be accompanied in the information supplied by the manufacturer by specific advice or warnings.

4.2.8. Size designation

- 4.2.8.1. Overalls shall be marked with its size based on body dimensions measured in centimetres. Exceptions shall be specified in detail in the relevant product standards, e.g. Genital protectors for use in sports.
- 4.2.8.2. Measurement procedures and the designation of dimensions shall correspond to EN 13402. The size designation of each garment shall comprise the control dimensions for the chest or bust girth and height.
- 4.2.8.3. The designation and sizes shall be as per Fig. 1 and Table 1 as per KNWA 2409-7:

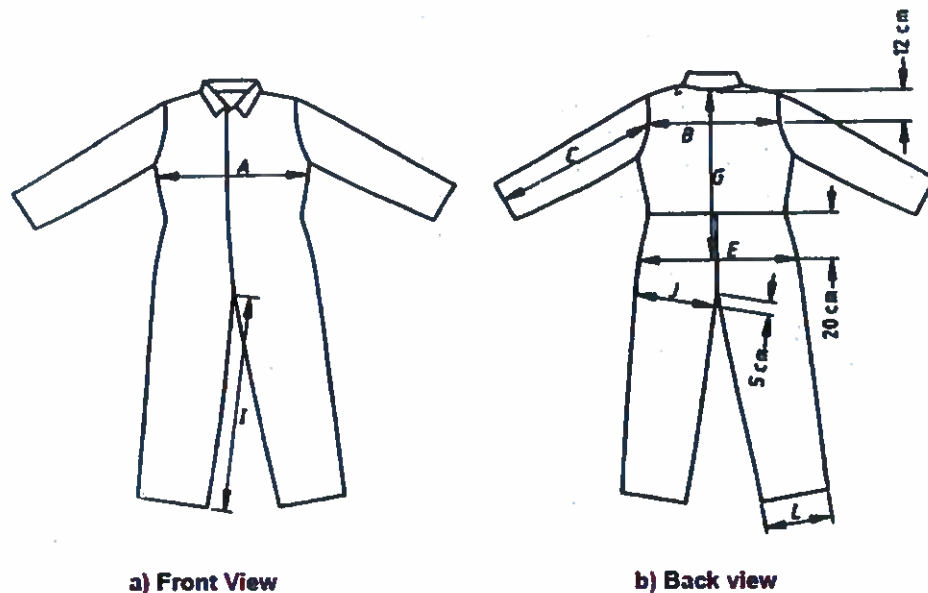




Fig. 1: Size designation of overalls

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4.2.8.4. Manufacture

4.2.8.4.1. Seams

- 4.2.8.4.1.1. All visible seams (i.e. those that are visible on the surface or inside the garment) shall be seam type 1.01.01 over-edged, sewn in one or more operations; as described in KS 836-2. There shall be no raw edges, but a single row of stitching shall be permitted where the edges have selvages.
- 4.2.8.4.1.2. For hidden seams (e.g. inside collar) seam type 1.01.01 as described in KS 836-2; shall be used.
- 4.2.8.4.1.3. The minimum seam allowance shall be 0.8 cm for all fabrics.

4.2.8.4.2. Stitching

- 4.2.8.4.2.1. For garments with the exception of the lightweight two-piece working rig, the stitching shall be multi-thread chain stitch, type 401, 506 or 514 as described in KS 836-1.
- 4.2.8.4.2.2. There shall be not less than 3.2 and not more than 4 stitches per centimetre.
- 4.2.8.4.2.3. For the lightweight two(2) piece-working rig, for side, sleeve head, sleeve, shoulder, yoke, inside leg and seat seams, side pockets and pocket bags, stitching shall be one of the following, combination stitch, (401, 504), as described in KS 836-1.

4.2.8.5. Finish

- 4.2.8.5.1. The finished overall shall be **Blue Pantone 288PC** in colour.
- 4.2.8.5.2. It shall have elasticized waistband with one button.
- 4.2.8.5.3. It shall have long sleeves with cuffs, high collar and elasticized waist. Legs shall be two pieces with bottoms of 570mm \pm 10mm circumference each. The collar shall be a double thickness, unlined, fitted, turned-down collar having a 75 mm \pm 10 mm finished width (non-folded).

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4.2.8.5.4. The overall shall have two 140 x 160 mm chest pockets, two standard back pockets with hidden exterior-to-interior access through pocket lining and one 190 x 230 mm tool pocket (with flap) on right leg. All pockets, except hip pockets, shall have buttons for locking. Each side of the overall next to the hip pocket shall have an opening of 180mm length for hand access to the pocket of inner ordinary clothes. A tolerance of ± 10 mm shall be allowed on these dimensions.

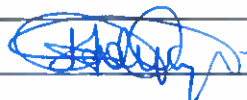

4.2.8.5.5. The overall shall have the following markings:

- a) Kenya Power Logo (retroreflective) shall be embroidered on the left chest area above the pocket. The logo shall be 65mm by 65mm in size.
- b) The overall shall also have 'Kenya Power' letters embroidered in retro-reflective yellow colour centered at the back (as per approved sample). The letters shall be 65mm wide x 10mm high with a tolerance of ± 5 mm.
- c) The overall dimensions of the marking at the back as follows:
 - (i) **KENYA**– 60mm high x 250mm wide with a tolerance of ± 5 mm.
 - (ii) **POWER** – 60mm high x 250mm wide with a tolerance of ± 5 mm.

4.3. Ordinary Overalls

4.3.1. Design and construction

- 4.3.1.1. The fabric for the overall in this specification shall have permanent heat and flame retardant properties conforming to ISO 11612 (see Table 3) and anti-static resistance property conforming to BS EN 1149-3. (see Table 3)
- 4.3.1.2. The overall shall have two-way concealed front slide fastener, centrally located and open ended. It shall have a locking slider –metal snap enclosure and the slider shall be made from polyamide.
- 4.3.1.3. The overall shall have large pleats in the back for freedom of movement and comfort and a permanent stitched-in front pleat.
- 4.3.1.4. The overall shall have two bands of retro-reflective material around the torso of the garments and two bands of retro-reflective material which encircle the sleeves at the same height as those on the torso to provide 360° visibility of the wearer as shown in Fig. 2.

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4.3.1.5. The high visibility retro-reflective material shall be fluorescent Yellow – Green and shall be of class 3 conforming to the requirements of ISO 20471.

- 4.3.1.6. The reflective material shall have the following features:-
- a) **Visibility:** Reflective material shall be visible from 300 metres.
 - b) **Reflectivity :** The reflectivity of the material shall have maximum reflective of 500 cd/lux (Test Certificate to be provided during tender)
 - c) **Certification/Approval :** The reflective tape shall be to ISO 20471 standards (Test Certificate to be provided during tender)
 - d) **Washability :** The reflective tape shall be approved tested for sustaining 50 washes (Test Certificate to be provided during tender)

4.3.2. General fabric requirements

4.3.2.1. Fabrics for the overalls shall be made of 100 % cotton with a blend of 5% para-aramide fibres material complying with KS 541 Part 1.

4.3.2.2. The overall fabrics shall be classified as per Table 2 for the general physical characteristics:

Table 2: Physical Characteristics for Fabric for Overalls

Type	Fibre Composition	Weave	Mass g/m ²
Type 1	100% cotton	Twill	260
Type 2	100% cotton	Twill	220
Type 1:	For use in areas of moderate temperatures (all areas of Kenya not listed under Type 2).		
Type 2:	For use in Coast Province, Kisumu, Garissa and the other hot areas of Kenya.		

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Table 3: Physical requirements for overall garment

Parameter	Requirement	Test standard
Dimensional change (%)	ISO 5077	-0.8 / -2.3
Anti-static properties	Half period of discharge	EN 1149-5
	Shielding factor, S	EN 1149-3
Tensile strength, min, N	300	ISO 13934-1
Tear strength, min, N	15	ISO 13937-2
Burst strength, min, kPa	200	ISO 13938-1
Seam strength, min, N	225	ISO 13935-2
Resistance to water and water vapour penetration	Code letter W	EN 343
Resistance to convective heat	Performance level B1 - 5	ISO 9151
Resistant to radiant heat at a flux density of heat of 20 kW/m ²	Performance level C1 - 16	ISO 6942
Resistance to contact heat at a temperature of 250 ^o C	Performance level F1	ISO 12127
Protection against the thermal effects of an electric arc current	No effect	IEC 61482-1

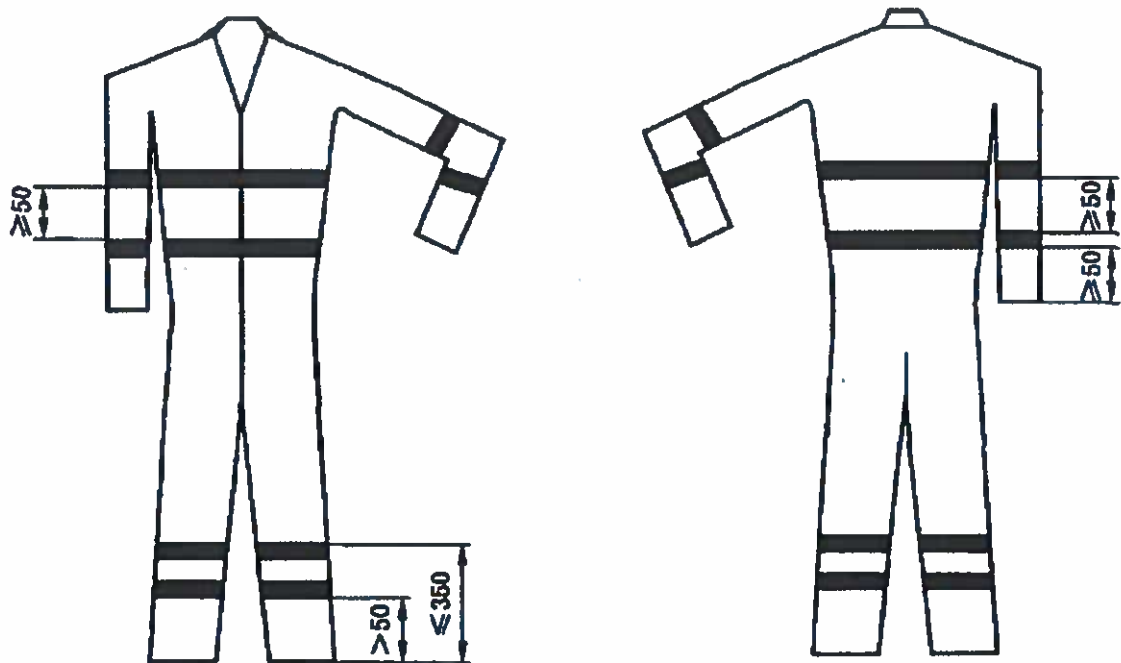


Fig. 2: Illustration of class 3 Ordinary overall with two bands retro-reflective material

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4.4. Acid Protective Overall

4.4.1. General

- 4.4.1.1. The acid protective overall shall be in accordance with all the requirements listed in clauses 4.2 of this specification.
- 4.4.1.2. The acid proof overall shall fully conform to the requirements of at least class 3 of BS EN 14325 and Table 4.
- 4.4.1.3. The overall shall be designed to be worn over every day clothes to protect the wearer from direct contact with acids (splash).
- 4.4.1.4. The overall shall guard against the effects of acids, which could enter the body through skin absorption or tissue damage upon contact with the skin. It shall protect the body, arms and legs of the wearer.
- 4.4.1.5. The acid proof overalls shall be CE-certified and classified as chemical-protection Types 3. They shall also be tested for anti-static properties under EN 1149-1.
- 4.4.1.6. The hood (if applicable), sleeves and cuffs of the trousers shall be fitted with elastic drawstrings keeping splashes out. The zip fastener shall run down the middle of the front side and shall be fitted with two cover strips held in place by tape.
- 4.4.1.7. The seams of the one-piece overalls shall also be impermeable to liquids and shall provide protection against ultra-fine dusts and powders, with an effective barrier to many inorganic acids and alkalis as well as water-based salt solutions.

4.4.2. Material

- 4.4.2.1. The material used to manufacture the acid proof overall shall be 65% polyester and 35% cotton high quality fabric with polyurethane coating.
- 4.4.2.2. The acid protective overall shall be made from material of minimum physical characteristics given in Table 4.

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4.4.2.3. The materials of construction shall not cause skin irritation or have any adverse effect to health of the wearer. The material shall have a crease recovery angle of at least 120°.



Table 4: Test methods for overall fabric as specified in BS EN 14325 and KS 541:1

Material			
Physical characteristics	KPLC Requirement	Unit of measure	Test Method
Fiber composition	Polyester, %	65 ± 5	KS 08-127
	Cellulose, %	35 ± 5	
Breaking strength	Warp way, N, min	920	KS 08-119
	Weft way, N, min	800	
Threads per cm,	Warp way, min	18	KS 08-121
	Weft way, min	17	
Mass per unit area, g/m ² , min		220	KS 08-120
Weave	Plain		KS 08-212
Abrasion resistance	>500	cycles	EN 530 method 2
Flex resistance	>5,000	cycles	ISO 7354 method B
Tear resistance (trapezoidal)	>40	N	EN ISO 9073-4
Tear strength	>100	N	EN ISO 13934-1
Puncture resistance	>50	N	EN 863
Resistance to penetration by liquids	>60	min	EN ISO 6529
Resistance to ignition	Must not continue to burn after 5s	Pass/fail	EN 13274-4 method 4
Seams - Joins - Assemblages			
Resistance to liquid permeation	>60	min	EN ISO 6529
Seam strength	>75	N	EN ISO 13935-2
Resistance to penetration by liquids	Whole suit EN 463 type 3		EN 463

4.5. QUALITY MANAGEMENT SYSTEM

4.5.1. The supplier shall submit a quality assurance plan (QAP) that will be used to ensure that the requirements for protection, ergonomic characteristics, innocuousness, mechanical properties, marking of the overalls, will fulfill the requirements stated in the contract documents, standards, specifications and regulations.

4.5.2. The Manufacturer's Declaration of Conformity to applicable standards and copies of quality management certifications shall be submitted with the tender for evaluation.

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5. TESTS AND INSPECTION

- 5.1. The overalls shall be inspected and tested in accordance with all the standards in clause 2.0, Tables 3 & 4 and the requirements of this specification. It shall be the responsibility of the supplier to perform or to have performed all the tests specified.
- 5.2. Copies of previous **Test Reports confirming conformity to clause 4 for the overalls issued by a third party testing laboratory that is accredited to ISO/IEC 17025** shall be submitted with the tender for the purpose of technical evaluation. The accreditation certificate for the third party testing laboratory shall also be submitted with the tender (all in English Language).
- 5.3. Test Reports for the overalls to be supplied under the contract shall be submitted to The Kenya Power & Lighting Company for approval before shipment/delivery.
- 5.4. The overalls shall be subjected to acceptance tests in accordance with all the standards in clause 2.0, Tables 3 & 4 and the specification requirements at the manufacturer's workshop before dispatch. Acceptance tests shall be witnessed by at least two (2) Tender Processing Committee members appointed by The Kenya Power and Lighting Company Limited (KPLC). Routine and Sample Test Reports for the overalls to be supplied shall be submitted to KPLC for approval before delivery of the goods.
- 5.5. On receipt of the overalls KPLC will inspect them and may perform or have performed any of the relevant tests in order to verify compliance with the specification. The supplier shall replace without charge to KPLC, overalls which upon examination, test or use fail to meet any of the requirements in the specification

6. MARKING AND PACKING

6.1. Marking

- 6.1.1. Each item of overalls shall be marked with the following information in English Language, which shall be permanently attached to the garment and remain perfectly legible.
 - (i) A means of identifying either the manufacturer or his authorized representative within the EC, for example trade mark.
 - (ii) The product's commercial name, style code or other means of identification.
 - (iii) The size designation.
 - (iv) A brief description of the level of protection offered.

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- (v) A warning that no item of clothing can offer full protection.
- (vi) Care instructions (care label symbols including negative symbols where appropriate).
- (vii) The standard of manufacture
- (viii) The letters, "Property of Kenya Power".

6.1.2. If the user information includes cleaning instructions the labelling shall be visually examined after it has been cleaned five times using the cleaning treatment recommended in those instructions. The labelling shall still be perfectly legible after these cleaning treatments.

6.2. Packing

- 6.2.1. The packaging which immediately contains the clothing shall be marked with the information specified in 6.1.2 (i), (ii), (iii) and (iv), and shall indicate where the wearer information and instructions for use can be found.
- 6.2.2. The overalls shall be packed in a clean, sound and dry containers made of a material, which does not affect the product it protects from excessive loss of moisture and contamination.

7. DOCUMENTATION

- 7.1. The bidder shall submit its tender complete with technical documents required by Annex A (Guaranteed Technical Particulars) for tender evaluation. The technical documents to be submitted (all in English language) for tender evaluation shall include the following:
 - a) Guaranteed Technical Particulars signed by the manufacturer;
 - b) Copies of the Manufacturer's catalogues, brochures, drawings and technical data;
 - c) Details of the manufacturer's experience;
 - d) Copies of required test reports by a third party testing laboratory accredited to ISO/IEC 17025 and a copy of accreditation certificate to ISO/IEC 17025 for the third party testing laboratory;
 - e) Manufacturers letter of authorization, QMS certificate and other technical documents required in the tender.
 - f) Packaging details (including packaging materials).
- 7.2. The successful bidder (supplier) shall submit the following documents/details to The Kenya Power & Lighting Company for approval before manufacture:
 - a) Guaranteed Technical Particulars signed by the manufacturer;
 - b) Design Drawings with details of the overalls to be manufactured for KPLC.

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- c) Quality assurance plan (QAP) that will be used to ensure that the design, material; workmanship, tests, service capability, maintenance and documentation will fulfill the requirements stated in the contract documents, standards, specifications and regulations. The QAP shall be based on and include relevant parts to fulfill the requirements of ISO 9001:2008
- d) Detailed test program to be used during factory testing;
- e) Marking details and method to be used in marking the overalls;
- f) Manufacturer's undertaking to ensure adequacy of the design, good engineering practice, adherence to the specification and applicable standards and regulations as well as ensuring good workmanship in the manufacture of the overalls for The Kenya Power & Lighting Company;
- g) Packaging details (including packaging materials).

7.3. The supplier shall submit recommendations for use, care, storage and routine inspection/testing procedures, all in the English Language, during delivery of the overalls to KPLC store. Instructions shall be precise, comprehensible and in English language. They shall contain at least the following information:

- a) the information required in Clause 7;
- b) the full address of the manufacturer or his authorized representative;
- c) a statement of the intended use of overalls;
- d) an explanation of the protection provided under this standard and details of the extent of protective material and zones of specific impact protection provided;
- e) advice about wearing other PPE to obtain the protection desired, for example, shin protection can be provided by impact protectors fitted into trousers;
- f) a warning about the limits of protection provided by overalls;
- g) a warning about any environmental conditions or misuse that would seriously reduce the protection provided;
- h) instructions on how to clean and care for overalls;
- i) instructions on how to examine overalls for signs of wear and degradation;
- j) the suggested lifetime of overalls; instructions on actions to be taken when wear or damage is apparent to identify overalls which are no longer suitable to use;

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TITLE:
**SPECIFICATION FOR
PERSONAL PROTECTIVE
EQUIPMENT - PROTECTIVE
CLOTHING**

Part 1: Overalls

Doc. No.	KP1/6C/13/TSP/01/025-1
Issue No.	2
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ANNEX A: Guaranteed Technical Particulars (to be filled and signed by the Manufacturer and submitted together with relevant copies of the Manufacturer's catalogues, brochures, drawings, technical data, sales records, four customer reference letters, the manufacturer's experience and copies of complete type test reports for tender evaluation, all in English Language)

Tender No.

Clause	Description	Guaranteed Technical Particulars offered		
1	Ordinary Overalls			
	Name of Manufacturer & Country of manufacture of the assembly tools being offered	specify		
	Type/Model Reference Number	specify		
	Standard of manufacture			
	Compliance to clauses 4.2.1 to 4.2.4			
	Material properties	Emission of nickel per week	Prove compliance – Attach type test.	
		pH value		
		Colour fastness		
		Release of carcinogenic amines		
	Compliance to clauses 4.2.6 to 4.2.7	Prove compliance – Attach type test.		
	Size designation as per Table 1.	Attach drawing for each size offered		
	Manufacture	Seams	Visible seams type	Prove compliance – Attach type test.
			Hidden seams type	
			Minimum seam allowance	
		Stitches	Stitching type	
No of stitches per cm				
Finish		Colour of overall		
		Sleeve design and dimensions		
		Legs design and dimensions		
		Collar design and dimensions		
		Pockets design and dimensions		
Markings	KPLC logo			
	Word KPLC			
Design and constructions	Shall have a permanent heat and flame retardant properties conforming to ISO 11612	Prove compliance – Attach type test.		
	Anti-static resistance property conforming to BS EN 1149-3.	Prove compliance – Attach type test.		
	shall have large pleats in the back	specify		
	high visibility retro reflective material shall be fluorescent Yellow – Green and shall be of class 3 conforming to the requirements of ISO 20471	Prove compliance – Attach type test.		
Reflective material	Band design	Prove compliance – Attach type test.		
	Colour			
	Visibility distance, m			

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Clause	Description	Guaranteed Technical Particulars offered		
	Reflectivity, cd/lux	Prove compliance – Attach type test.		
	Certificate of approval – IEC/ISO 17025			
	Washability			
	Shall be made of 100 % cotton with a blend of 5% Para-aramide fibres material complying with KS 541 Part 1			
	General fabric requirements		Overall Type 1	Type of fabric
				Blend composition
				Weave type
	Overall Type 2		Overall Type 2	Mass, g/m ²
				Type of fabric
				Blend composition
	Physical requirements for overall garment.		Anti-static properties	Half period of discharge
				Shielding factor, S
			Tensile strength, min , N	Prove compliance – Attach type test.
			Tear strength, min, N	
			Burst strength , min, kPa	
Seam strength, min, N				
Resistance to water and water vapour penetration				
Resistance to convective heat				
Resistant to radiant heat at a flux density of heat of 20 kW/m ²				
Resistance to contact heat at a temperature of 250 ^o C				
Protection against the thermal effects of an electric arc current				
Acid protective overall				
Name of Manufacturer & Country of manufacture		specify		
Type/Model Reference Number		specify		
Standard of manufacture		specify		
Compliance to clauses 4.2.1 to 4.2.4		specify		
General material properties	Emission of nickel per week	Prove compliance – Attach type test.		
	pH value			
	Colour fastness			
	Release of carcinogenic amines			
Compliance to clauses 4.2.6 to 4.2.7		specify		
Size designation as per Table 1.		specify		
Manufacture	Seams	Visible seams type	Prove compliance – Attach type test.	
		Hidden seams type		
		Minimum seam allowance		
	Stitches	Stitching type		
		No of stitches per cm		
		Finish		Colour of overall

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Clause	Description	Guaranteed Technical Particulars offered								
	<table border="1"> <tr><td>Sleeve design and dimensions</td></tr> <tr><td>Legs design and dimensions</td></tr> <tr><td>Collar design and dimensions</td></tr> <tr><td>Pockets design and dimensions</td></tr> <tr> <td>Markings</td> <td> <table border="1"> <tr><td>KPLC logo</td></tr> <tr><td>Word KPLC</td></tr> </table> </td> </tr> </table>	Sleeve design and dimensions	Legs design and dimensions	Collar design and dimensions	Pockets design and dimensions	Markings	<table border="1"> <tr><td>KPLC logo</td></tr> <tr><td>Word KPLC</td></tr> </table>	KPLC logo	Word KPLC	
Sleeve design and dimensions										
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KPLC logo										
Word KPLC										
	<table border="1"> <tr> <td rowspan="4">General requirements</td> <td>Conform to at least class 3 of BS EN 14325 and Table 4</td> </tr> <tr> <td>Shall guard against the effects of acids</td> </tr> <tr> <td>CE-certified and classified as chemical-protection Types 3</td> </tr> <tr> <td>Tested for anti-static properties under EN 1149-1.</td> </tr> </table>	General requirements	Conform to at least class 3 of BS EN 14325 and Table 4	Shall guard against the effects of acids	CE-certified and classified as chemical-protection Types 3	Tested for anti-static properties under EN 1149-1.	Prove compliance – Attach type test.			
General requirements	Conform to at least class 3 of BS EN 14325 and Table 4									
	Shall guard against the effects of acids									
	CE-certified and classified as chemical-protection Types 3									
	Tested for anti-static properties under EN 1149-1.									
Acid material physical properties	Shall be 65% polyester and 35% cotton high quality fabric with polyurethane coating									
	Fiber composition	<table border="1"> <tr><td>Polyester, %</td></tr> <tr><td>Cellulose, %</td></tr> </table>	Polyester, %	Cellulose, %						
	Polyester, %									
	Cellulose, %									
	Breaking strength	Warp way, N, min								
		Weft way, N, min								
	Threads per cm,	Warp way, min								
		Weft way, min								
	Mass per unit area, g/m ² , min									
	Weave									
	Abrasion resistance									
	Flex resistance									
	Tear resistance (trapezoidal)									
Tear strength										
Puncture resistance										
Resistance to penetration by liquids										
Resistance to ignition										
Shall not cause skin irritation or have any adverse effect to health of the wearer										
Shall have a crease recovery angle of at least 120°.										
Seams – Joins - Assemblages	Resistance to liquid permeation									
	Seam strength									
	Resistance to penetration by liquids									
4.5.	Quality Management System									
	Quality Assurance Plan	provide								
	Copy of ISO 9001:2008 Certificate	provide								
	Manufacturer's experience	provide								
	Manufacturing Capacity (units per month)	provide								
	List of previous customers	provide								
	Customer reference letters	provide								
5.1	Test standards and responsibility of carrying out tests	provide								
5.2	Copies of Type Test Reports submitted with tender	provide								
5.3	Test reports to be submitted by supplier to KPLC for approval	provide								
5.4	Replacement of rejected overalls.	specify								
6.1	Marking	specify								
6.2	Packing	specify								

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Clause	Description	Guaranteed Technical Particulars offered
7.1	Documents submitted with tender	provide
7.2	Documents to be submitted by supplier to KPLC for approval before manufacture	provide
8.0	Manufacturer's Guarantee and Warranty	provide
9.0	List catalogues, brochures, technical data and drawings submitted to support the offer	provide
10.0	List customer sales records and reference letters submitted to support the offer.	provide
11.0	List Test Certificates submitted with tender	provide
12.0	List test reports of the wrenches to be submitted to KPLC for approval before shipment	provide
13.0	Statement of compliance to specification (indicate deviations if any & supporting documents)	provide

.....
Manufacturer's Name, Signature, Stamp and Date

NOTE:

The Guaranteed Technical Particulars (GTP), test reports & their certificates, drawings and/or catalogues shall form the basis of technical tender evaluation. Bidders shall ensure that the offered values for the item conform to the values in the test reports and their certificates, drawings, catalogue references and/or brochures. Failure to adhere by this requirement shall lead to automatic disqualification at the technical evaluation stage.

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