

# UNHCR Environmentally Friendly Procurement

## DOCUMENT VERSION

This is the first version of this item with enhanced sustainability attributes, representing UNHCR's ongoing commitment to advancing the environmental, technical, social and economic sustainability of relief items, as of **August 05, 2024**. **This version of technical specification pertains to tarpaulins without UNHCR logos.**

## PLASTIC TARPAULIN, ECO-DESIGN, WITHOUT UNHCR LOGOS

Providing material assistance to forcibly displaced populations is fundamental to UNHCR's protection mandate. In an emergency, the Plastic Tarpaulins are one of the essential items that UNHCR distributes as part of the assistance to the affected populations. It is designed to be used in hot and dry climatic conditions, without humidity and moisture. The provision of tarpaulins is a life-saving measure in many situations.

## END USERS

UNHCR is mandated to protect and assist refugees, forcibly displaced communities and stateless people. The product with this specification will be used by the people we serve, primarily in emergencies. The end users include individuals of all ages, ranging from infants to older persons, persons with disabilities, and pregnant women. Therefore, the supplier needs to understand and study the needs of forcibly displaced populations, especially in emergencies, to ensure an innovative and sustainable product design that is user-centered.

## SUSTAINABLE SUPPLY CHAIN

For UNHCR to fulfill its mandate, it is imperative to minimize the environmental footprint of humanitarian assistance. Our approach to a sustainable end-to-end supply chain includes planning, sourcing, material, manufacturing processes, procurement, delivery, and lifecycle management of goods.

A holistic assessment of sustainable products includes but is not limited to, the following criteria:

- The product design follows Universal Design principles that are user-friendly and accessible.
- Manufacturing processes take into consideration the protection of the environment and respect for social standards<sup>1</sup>.
- Products are made from sustainable materials, including materials from Post-Consumer Waste Recycling (PCR) and/or Post-Industrial Waste Recycling (PIR)<sup>2</sup>.
- Packaging is made from sustainable material, ideally with a second-life purpose.
- All unnecessary single-use plastic is removed<sup>3</sup>.
- Packaging, palletizing, and load ability of transport units are optimized.
- Products are recyclable.
- A life cycle analysis, including GHG emission factors, is performed for all products.
- The geographical distribution of the supplier base is diversified to ensure the proximity of product delivery.

## PREFERENCE

Preference will be given to a product that is most user-friendly and incorporates the highest overall sustainability elements that satisfy technical specifications. Please refer to the Sustainability Procurement Indicators<sup>4</sup> from the United Nations Global Market, which UNHCR adheres to.

1 <https://universaldesign.ie/what-is-universal-design/the-7-principles/>

2 Pre-consumer waste is encouraged to be used while cannot be considered part of the target emission reduction.

3 <https://www.unep.org/resources/report/single-use-plastics-roadmap-sustainability>

4 <https://www.ungm.org/Shared/KnowledgeCenter/Pages/SustProIndicators>

## Item Application Sample



<b>Material for the tarpaulin</b>	<p>The tarpaulin is composed of woven high-density polyethylene (HDPE) black fibres fabric, laminated on both sides with a white low-density polyethylene (LDPE) coating. The tarpaulin should be made of a mixture of virgin and recycled* PE. The minimum target for recycled PE content in the product is 15%, although a higher or lower percentage will also be considered. Preference will be given to the product containing the highest proportion of recycled PE, particularly from Post-Consumer Waste Recycling sources, provided they meet the requisite quality and usability standards.</p> <p><i>*Recycled PE can originate from both Post-Consumer Waste Recycling (PCR) and Post-Industrial Waste Recycling (PIR). While the use of both PCR and PIR is encouraged, PCR is the preferred source. Recycled plastic should be certified as originating from a legitimate source. The internal recycling of raw materials within the factory, while encouraged, does not qualify as recycled PE.</i></p>
<b>Manufacturing quality</b>	<p>The woven base as well as the coating must be homogeneous. The black fibres must be straight in warp and weft, covering the entire surface of the tarpaulin. In a tarpaulin measuring 6 metres in length, there should not be more than one spot with a missing fibre or with a 5 mm gap between fibres.</p>
<b>Reinforced fixation point</b>	<p>Two bands, each with a width of 75 mm +/-4%, made of woven black HDPE fibre fabric and coated with grey LDPE on the outside. Seven holes, each 8 mm +/-1 mm in diameter, on each band at intervals of 1 m +/-5%, positioned at the centre of the bands, punched through the band and the tarpaulin. The position of the two bands and the holes should correspond to the Reference Drawing Section. Side bands can be positioned at a maximum distance of 10 mm from the edge. For easiness of production for 4m tarpaulins made with two parts of 2m assembled with a central weld, it is permitted to add two extra bands on either side of the central weld. That makes a total of 4 bands on the tarpaulin. These 2 extra bands should be white coated so that there are not visible. These 2 extra bands should be 50mm wide only to reduce the extra plastic consumption. This is not included in the standard specification, as it is a temporary authorization.</p>
<b>Expected lifespan</b>	<p>The plastic tarpaulin is expected to maintain its sheltering and waterproof capacities for four years under the strongest weather conditions. It shall have a minimum shelf life of six years.</p>
<b>Strength at the state of origin and after UV exposure</b>	
<b>Samples for tensile and tear tests</b>	<p>Cut all test pieces parallel to the direction of the fibres, in warp and weft. The fibres should run from one end to the other end of the test piece.</p>
<b>Tear strength at state of origin ISO 4674</b>	<p>Minimum 150 N under ISO 4674-1B 2003, with a test piece of 200 x 200 mm as described in ISO 4674 Annex B.</p>
<b>Tensile strength at state of origin ISO 1421-1</b>	<p>Minimum 750 N and 15% to 35% elongation in warp and weft under ISO 1421-1.</p>
<b>UV resistance ASTM G53, ISO 1421-1</b>	<p>Apply 1500 hours UV under ASTM G53/94 (UVB 313 nm peak). Maximum 5% loss of strength compared to the original tensile strength of the product.</p>
<b>Cut resistance EN 388-6.2</b>	<p>Minimum index 2.5. Test two test pieces from one sample.</p>
<b>Tensile strength in the fixation point</b>	<p>Minimum 900 N inside the fixation points as per ISO 1421-1, while pulling crosswise with a hook of 8 mm wire diameter. Samples (200 mm wide by 500 mm long) must be taken from each side of the tarpaulin, with three pieces from each side of the tarpaulin must be tested.</p>
<b>Welding and strength at state of origin</b>	<p>Only one welding is allowed, positioned in the middle of the sheet lengthwise. The tarpaulin's tensile strength crosswise at the place of the welding under ISO 1421-1, must be minimum 50% of the original value of the actual product.</p>
<b>Size, weight, colour, opacity, fire resistance:</b>	
<b>Sizes</b>	<p>The current technical specification applies to various sizes of tarpaulins, including predefined dimensions and a provision for customization as follows:</p> <ul style="list-style-type: none"> <li>Tarpaulin sheet: 4 x 6 m (Width: 4 m ± 1%; Length: Minimum 6 m ± 1%);</li> <li>Tarpaulin sheet: 4 x 10 m (Width: 4 m ± 1%; Length: Minimum 10 m ± 1%);</li> <li>Tarpaulin roll: 4 x 20 m (Width: 4 m ± 1%; Length: Minimum 20 m ± 1%);</li> <li>Tarpaulin roll: 4 x 60 m (Width: 4 m ± 1%; Length: Minimum 60 m ± 1%);</li> <li>Customized size: Width: 4 m ± 1%; Length: customized.</li> </ul> <p>Within the frame agreement, UNHCR may issue Purchase Orders (PO) specifying the details of a particular request, including specific sizes, within the parameters of the technical specification, as and when required.</p>
<b>The specific weight of the tarpaulin plain sheet</b>	<p>170 g/m<sup>2</sup> ± 10 g under ISO 3801 (equivalent to 160 g/m<sup>2</sup> minimum to 180g/m<sup>2</sup> maximum)</p>

<b>The specific weight of the bands</b>	From 150 g/m <sup>2</sup> to 200 g/m <sup>2</sup>
<b>Weight of the product</b>	<p>The weight of the product will depend on the sizes defined in the relevant PO and will be adjusted with manufacturer's information and are indicative only. The weights for typical sizes of tarpaulins are listed below:</p> <ul style="list-style-type: none"> <li>• Total weight of the 24 m<sup>2</sup> tarpaulin: 3.96 kg minimum to 4.512 kg maximum;</li> <li>• Total weight of the 40 m<sup>2</sup> tarpaulin: 6.6 kg minimum to 7.52 kg maximum;</li> <li>• Total weight of the 80 m<sup>2</sup> tarpaulin: 13.2 kg minimum to 15.04 kg maximum;</li> <li>• Total weight of the 200 m<sup>2</sup> tarpaulin: 33 kg minimum to 37.6 kg maximum;</li> <li>• And other weights for customized tarpaulins.</li> </ul>
<b>Flame resistance EN 13823+A1</b>	<p>Minimum class D, s2, d2.</p> <p>Minimum time to reach large wing external edge: 4 minutes (LFS)</p> <p>The presence of Flame Retardant (FR) additives (bromine, antimony) is not permitted.</p>
<b>Colour ISO 105J01</b>	<p>Inner black fibres to ensure opacity. White coating on both sides of the sheet as per: L.a.b Coordinates: minimum "L": 82</p> <p>"a" value between -1.7 and +1.5, "b" value between -4.5 and 0</p>
<b>Opacity measured as minimum reflection and maximum transmission, in the range of visible light and near-infrared. ISO 13468-1</b>	<p>Values should be measured respectively within the wavelength ranges of 350 to 750 nm and 750 to 2500nm.</p> <p>The result is the average of the averages within each range.</p> <p>Minimum total reflection: 35%</p> <p>Maximum total reflection: 55%</p> <p>Maximum total transmission: 5%</p> <p>Absorption: remaining balance to reach 100%</p>

### Primary packaging

Individual tarpaulin sheets (4 x 6 m, 4 x 10 m, others) should not have individual (primary) packaging.

Tarpaulin rolls (4 x 20 m, 4 x 50 m, others) should be individually packed in the same tarpaulin material.

### Secondary packaging

An optimal number of products should be packed in a bale, which must then be wrapped tightly with a piece of the same tarpaulin material, creating a well-shaped cubic bale.

- The quantity per secondary packaging depends on the tarpaulin's dimensions:  
4 x 6 m tarpaulin sheets should be packed 5 pieces per bale.  
4 x 20, 4 x 50 m tarpaulin rolls should not have secondary packaging.
- The bale must be strapped with two heat-sealed plastic straps (preferably made of recycled material) along the length and two along the width.

**Different packing methods may be accepted to maximize load-ability on pallets and in containers.**

### Tertiary packaging

The bales might be packed on a pallet.

### Optimal Shipping / Container Information

When preparing the shipment, consider the maximum capacity of each transport unit. Provide the maximum number of items that can fit in each transport unit, along with the container layout plan.

The following container types are applicable for products supplied to UNHCR:

20' DC container (without pallets)  
40' DC container (without pallets)  
40' HC container (without pallets)  
20' DC container (with pallets)  
40' DC container (with pallets)  
40' HC container (with pallets)

The final number of transport units and maximum loaded pallet height, if palletized, will be specified in the purchase order.

### Manufacturer's Marking

Manufacturer's marking should be printed on the tarpaulin. Please refer to the reference drawings for graphic details. It typically includes the following information:

- Manufacturer's name (printed on the band)
- Unique reference batch number (printed on the band)
- Date of manufacturing (month and year) (printed on the band)
- Recycling identification symbol and resin code (as per ASTM International Resin Identification Coding System (RIC)) used in the tarpaulin (both LDPE and HDPE) (printed on the band)
- "Do not burn" sign (printed on the band)
- User's guide as per the reference drawing (printed on the band)

**Supplier's and manufacturer's logos are prohibited.**

The final marking on the tag, letter size and design must be approved by UNHCR before production.

### Marking on bales

Plastic Tarpaulin, 4 x (Length) m, number of pieces and PO number. Supplier's and manufacturer's logos are prohibited. The marking must remain readable and securely fixed on the bale after a minimum of 10 handlings. Additional markings specified in the contract/PO are also required.

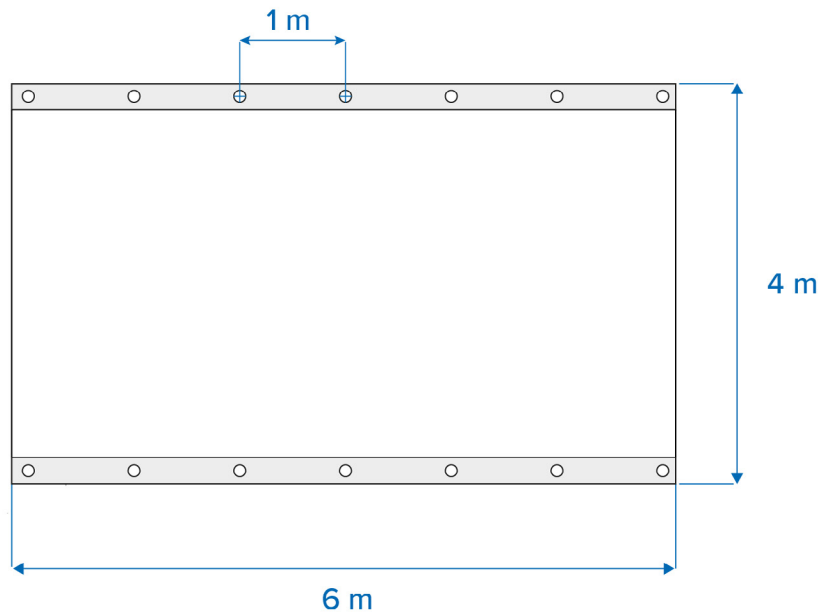
### Marking techniques

- Laser engraving
- Printing with water-based ink
- Printing on sustainable sticky tapes
- No harmful ink/colouring should be used

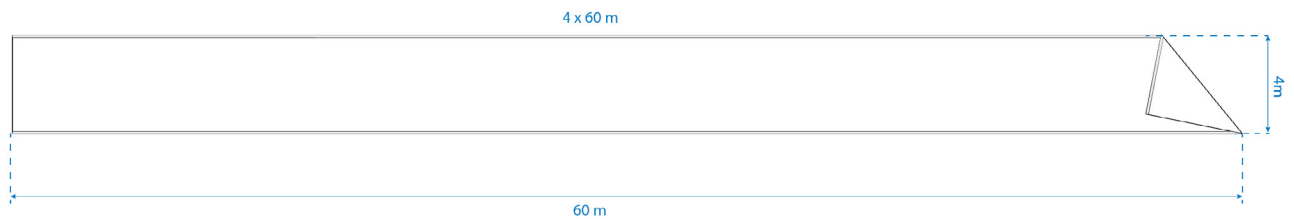
Graphic Reference

This version of technical specification pertains to tarpaulins without UNHCR logos.

Reference drawing 1: A plastic tarpaulin 4 x 6 m



Reference drawing 2: A plastic tarpaulin roll 4 x 60 m



Reference Drawing for the Manufacturer's Marking

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**Supplier's and manufacturer's logos are prohibited.** The final marking on the tag, letter size and design must be approved by UNHCR before production.

MANUFACTURER'S NAME

A UNIQUE REFERENCE BATCH NUMBER

THE DATE OF MANUFACTURING (MONTH AND YEAR)

