Industry Specification

Jute Bags – Jute Yarns for Use in Cocoa Supply Chains

1. Scope

Jute bags (printed and unprinted) and jute yarn for use as food contact materials for cocoa beans (and potentially for use for other food categories, though maximum limits may vary depending on the migration mechanisms for each commodity). For other natural fibres (sisal, fique, cabuya, etc.), the same requirements apply.

2. Introduction and General Provisions

These specification criteria have been established to meet the requirement for an alternative to the IJO98/01 standard for jute bags and jute yarn[1] in the context of the future EU regulation on maximum levels of mineral oil aromatic hydrocarbons (MOAH) in food[2]. The criteria are intended to support the minimisation of mineral oil hydrocarbon contamination arising from the use of jute bags in the cocoa supply chain.

Good manufacturing practices shall be followed in the production of jute bags, which should meet the defined chemical and organoleptic criteria described in Sections 3.1 and 3.2 below. Jute bags shall also conform to the legal requirements for food packaging materials and waste management of the relevant countries.

Although the IJO98/01 standard was established to prevent mineral oil-contaminated jute entering cocoa supply chains, the chemical criteria it specifies are based on levels of unsaponifiable matter (USM) as a proxy for total mineral oil hydrocarbons (including both mineral oil saturated hydrocarbons (MOSH) as well as MOAH). However, research using improved analytical technology has found a lack of correlation between USM and MOAH levels and the IJO98/01 standard has been found to provide insufficient control of MOAH contamination. This specification incorporates a requirement that any substances and materials used during production of jute/jute bags including batching oils, emulsifiers, lubricants, inks and any other components should be safe for food contact use and will not lead to MOSH/MOAH contamination. It also includes the requirement that the production and handling of jute and jute bags for use in the cocoa supply chain should be sufficiently segregated from non-compliant materials in order to minimise the risk of cross-contamination.

3. Analytical criteria

Ingredients of batching oils, emulsifiers, lubricants and printing inks shall be food grade/non-toxic and approved for use in packaging materials that will come into contact with the selected food materials. Batching oils, emulsifiers, lubricants and printing inks shall not contain compounds that could produce off-flavours or off-tastes in food material packed in jute bags, nor should they be made from an allergenic source (i.e. neither peanut oil nor sesame oil shall be used).

[1] IJO98/01: Special Criteria for the Manufacture of Jute Bags used in the Packing of Selected Food Materials (Cocoa Beans, Coffee Beans and Shelled Nuts). Adopted by International Jute Organisation in 1998 and accepted by the International Cocoa Organisation in 1998.

[2] The upcoming EU regulation will set maximum limits for MOAH (≥ C10 to ≤ C50) and will recommend monitoring of MOSH.

3.1 Chemical Criteria

MOSH: max. 250 mg/kg

MOAH: max. 25 mg/kg

The analytical method that laboratories should apply for MOSH/MOAH testing is described in the EU JRC guidelines (Bratinova *et al.* 2023 and any subsequent versions). The laboratories must have validated the method.

3.2 Organoleptic Criteria

No undesirable odours or odours untypical of jute shall be present, nor develop after artificial ageing of the bags.

4. Sampling

IMPORTANT

All samples shall be handled with clean, grease-free hands, placed in pre-cleaned, solvent-rinsed containers, properly labelled, and stored and transported under conditions that prevent contamination prior to analysis (see section 4.8 for details).

All bags/yarn produced under similar conditions of production and delivered to a buyer against one dispatch note shall constitute a lot.

4.1 Sampling Procedure

Random Sampling Techniques will be followed for collecting samples and preparation of specimens for carrying out the required tests.

4.2 Bags (unprinted/printed)

4.2.1 Lot Sample

Up to 100 bales	2 bales	1 bag/bale
101 - 150 bales	3 bales	1 bag/bale
151 - 200 bales	4 bales	1 bag/bale

For each additional 50 bales or below – 1 bale is to be selected randomly.

4.2.2 Preparation of Individual Jute Bag Samples

One bag should be randomly chosen from each selected bale for analysis. The whole bag should be shredded to ensure that areas covered by printing, stitching and labels are incorporated. Shredding (see Section 4.7) should ensure that pieces are max. 2 cm x 2 cm and well mixed according to the cone and quarter technique. This process should yield an aggregate sample of at least 400 g that can be used to provide a laboratory sample of approximately 10 g (see Section 4.6)[3]. If any of the samples from the lot do not meet the specification, the whole lot will be rejected.

[3] Please refer to the following video illustration kindly provided by IJIRA:
https://drive.google.com/file/d/1aWxxAs93tBhuUSvzNdLTy9YWrbzNfgPg/view?usp=drivesdk

4.3 Cloth

4.3.1 Lot Sample

Up to 100 rolls	2 rolls selected at random	2 m of cloth per roll

For each additional 50 rolls, one additional roll shall be selected randomly.

The 2 m cloth sample should not be exclusively selected from the roll's outer layer.

4.3.2 Preparation of Cloth Samples

The whole cloth sample should be shredded (see Section 4.7) to ensure that pieces are max. 2 cm x 2 cm and well mixed according to the cone and quarter technique such that a laboratory sample can be taken and analysed (see Section 4.6). If any of the samples from the lot do not meet the specification, the whole lot will be rejected.

4.4 Yarn[4]

4.4.1 Lot Sample

Export container packed pallet-wise/truss-wise	2 pallets/trusses selected at random	5 spools/coils per pallet/truss

4.4.2 Preparation of Cloth Samples

The yarn from each selected pallet/truss shall be converted into a 45-yard hank under clean, contamination-free conditions. Hanks obtained from each pallet/truss shall be wrapped in clean aluminium foil prior to transfer to the laboratory.

From each hank, pieces of yarn approx. 2 cm long should be cut at different points in the hank using clean, solvent-rinsed scissors.[5] These pieces should be then well mixed to form an incremental sample of 2 g ± 0.5 g. The incremental samples obtained from five spools/coils of a single pallet/truss shall be combined and well mixed to form an aggregate sample which can be used to provide a laboratory sample of approximately 10 g (see Section 4.6).

Since two pallets/trusses are sampled per container, a total of two MOSH–MOAH analyses shall be performed for each lot. If either does not meet the specification, the whole lot will be rejected.

4.5 Sample packing

Samples have to be packed in inert sampling vessels or in aluminium foil sheets (see annex for detailed guidelines) to avoid contamination through the packaging material.

4.6 Laboratory sample preparation

Following the aggregate sample preparation guidelines illustrated in sections 4.3 to 4.5, the laboratory sample of 10 g ± 0.5 g should be accurately weighed and analysed with a method

[4] Section to be further developed in consultation with the jute sector. It is currently based on the sampling strategy used by IJIRA (February 2026).

[5] Please refer to the following video illustration kindly provided by IJIRA:
https://drive.google.com/file/d/1bZcZOxGDWKlDSxztzD1pS03E8MOYZPJ4/view?usp=drivesdk

that follows the workflow specified in Bratinova *et al.* 2023. Final sample weight should be specified.

4.7 Contamination Control

It is preferable to shred the jute material manually or with electrical scissors. Equipment used for shredding or mixing should be thoroughly cleaned between batches with laboratory grade (*not* technical grade) acetone and n-hexane. Precautions relating to potential sources of contamination during sampling and analysis should be taken as set out in Bratinova *et al.* 2023. These will cover potential contamination sources including the use of gloves/skin care products, containers for sample storage, cleaning materials and lubricants used on equipment.

5. References

Bratinova, S., Hoekstra, E. and Robouch, P. (2023) *Guidance on sampling, analysis and data reporting for the monitoring of mineral oil hydrocarbons in food and food contact materials – In the frame of Commission Recommendation (EU) 2017/84*, Publications Office of the European Union, 2023. https://data.europa.eu/doi/10.2760/963728

EFSA CONTAM Panel *et al*. (2023) Update of the risk assessment of mineral oil hydrocarbons in food. *EFSA Journal* 2023; 21(9), 1-143. https://doi.org/10.2903/j.efsa.2023.8215

MOH Technical Working Group (TWG), (2024) Executive summary of the project "MOH contamination in the jute bag supply chain used for packing cocoa beans - a specification level concept", conducted by Prof. G. Purcaro, University of Liège, and supported by members of the MOH TWG. https://jointcocoaresearchfund.eu/fileadmin/downloads/moahEAC2024.pdf

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Annex

Sample packing guidelines for jute bags

Requirements:

1. For shipping, the bag needs to be wrapped in aluminium foil.
2. For each jute bag, 2 pieces of aluminium foil, each with a length of at least 2 metres, are needed.
3. It is important that only the aluminium foil comes into direct contact with the jute bag, to avoid contamination.

Information to include in labels for samples ready for shipment:

1. The name and the origin of the jute bag manufacturer.
2. The jute bag supplier and the origin of the supplier, if different from the manufacturer.
3. All other relevant information (e.g. location where bag used).

Detailed sample packaging guidelines for jute bags

1. Fold the bag twice.

First folding: ½ width

Second folding: ¼ width

2. Roll the bag.

3. Wrap twice in at least 4 layers of aluminium foil.

1st wrapping

2nd wrapping

4. Wrapped jute bag ready for further packaging and shipment.