



## Table of Contents

REVISION HISTORY .....	2
INTRODUCTION .....	3
SCOPE .....	3
PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE .....	3
DEFINITION OF TERMS .....	4
REQUIREMENTS FOR INITIAL CERTIFICATION .....	4
GRANTING OF THE DCL CERTIFICATION AND FEES .....	10
ANNEX A .....	11

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Date of Issue: 30/06/2025

Rev. No.: 01

Date of update: 30/06/2025

Page 1 of 13



Organization/Unit:

إدارة مختبر دبي المركزي  
Dubai Central Laboratory Department

الوحدة  
التنظيمية:

Document Title:

Certification of Non-Metallic Materials and  
Products for Use in Contact with Water  
Intended for Human Consumption  
as per BS 6920

عنوان الوثيقة:

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Date of Issue: 30/06/2025

Rev. No.: 01

Date of update: 30/06/2025

Page 2 of 13



## 1 INTRODUCTION

- 1.1 This document prescribes the specific rule for certification of non-metallic materials and products used in water supply systems—from source to tap—including plumbing systems and water fittings, to verify their suitability for contact with water intended for human consumption with respect to their impact on water quality, in accordance with the requirements of DM Third Party Product Certification Scheme Through Factory Assessment, taking into consideration the applicable normative references and standard specification, in addition to the requirements for conformity evaluation, as stated below.
- 1.2 The applicant/client shall comply with this specific rule, and to all provisions under the “General Rule for DM Third Party Product Certification Scheme Through Factory Assessment “DM-DCLD-RD-DP21-2001 (IC).
- 1.3 This specific rule is an integral part of the general rules, and both shall always be read together.

## 2 SCOPE

- 2.1 This specific rule covers non-metallic materials and products used in domestic, commercial, or industrial water systems intended to convey or store water for human consumption.
- 2.1.1 Example of Covered materials/products (please refer to annex A for the full list):
- Convey water (e.g. pipes, fittings, hoses)
  - Store water (e.g. tanks, cisterns)
  - Control or regulate water flow (e.g. valves, taps)
  - Seal or bond water-contact surfaces (e.g. sealants, adhesives, coatings)
  - Water tanks used in heating systems
  - Hoses intended for food and drink applications
- 2.2 It provides the general conformity assessment criteria for evaluation and certification. Regulatory requirements from local authorities must also be met.
- 2.3 This specific rule does not -by itself- permit the use of the below product market access or building use approval. However, it does provide the necessary general conformity assessment criteria, which are required for the evaluation and issuance of the certification and authorization of the use of the DCLD Conformity Mark. Other relevant requirements issued by the regulatory bodies, if any; shall always be fulfilled.

## 3 PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

- 3.1 Product name: Non-metallic materials and products used in domestic, commercial, or industrial water systems intended to convey or store water for human consumption

Approved/Authorized by CQPSM	OPEN DATA / بيانات مفتوحة : Level of Confidentiality/درجة السرية
Date of Issue: 30/06/2025	Rev. No.: 01
Date of update: 30/06/2025	Page 3 of 13



3.2 Applicable standard/Normative reference: BS 6920 – 1 — Suitability of non-metallic materials and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water – Part 1: Specification

3.3 Additional reference:  
ISO 9001 Quality Management System – Requirements  
ISO 19011 Guidelines for Auditing Management Systems

#### 4 DEFINITION OF TERMS

In addition to the definitions given in BS 6920 – 1 and the General Rule of the scheme [DM-DCLD- RD-DP21-2001 (IC)], the following shall apply: -

- 4.1 BS 6920 – 1 — Suitability of non-metallic materials and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water – Part 1: Specification
- 4.2 Definitions and abbreviations are in accordance with BS 6920 and water quality terminology.

#### 5 REQUIREMENTS FOR INITIAL CERTIFICATION

5.1 The process of application, initial assessment and product sampling shall be in line with the related provisions in the general rule and the standard specifications.

5.2 The factory shall have a laboratory with the following testing equipment as a minimum:

- Turbidity Meter
- Oven
- Do meter
- Measuring cylinder
- pH Meter
- Sample Container,
- Petri Dish,
- Incubator
- Conductivity meter
- HACH instrument
- ICP AES.
- Micropipette

5.3 Product Evaluation and testing

5.3.1 Samples drawn for independent tests shall meet the requirements as per the Standard Specification as follows

5.3.1.1 Odor and flavor

Approved/Authorized by CQPSM	OPEN DATA / بيانات مفتوحة : Level of Confidentiality/درجة السرية
Date of Issue: 30/06/2025	Rev. No.: 01
Date of update: 30/06/2025	Page 4 of 13



- Products and materials other than multi-layered hoses, pipes and tubes (BS 6920-2.2.1)
- Multi-layered hoses, pipes and tubes (BS 6920-2.2.2)

5.3.1.2 Appearance of water (color and turbidity), (BS 6920-2.3)

5.3.1.3 Growth of aquatic microorganisms (BS 6920-2.4)

5.3.1.4 Extraction of harmful substances (e.g. heavy metals, toxic organics), (BS 6920-2.5 & BS 6920-2.6)

5.3.1.5 High temperature test, (BS 6920-3)

5.3.2 The sampling plan for initial assessment / factory surveillance shall be as per Table 1 below.

Table 1: BS 6920 Sampling Requirements by Product

Elastomers (e.g., EPDM gaskets, O-rings)	
Requirement	Details
Sample Source	Internal water-contact surface (gasket face, O-ring exterior)
Recommended Sample Format	Whole items (gaskets, O-rings) or cut sections if required by lab
Sample Condition	New, unused, clean, representative
Number of Samples	Typically, 10–20 O-rings or 5–10 gaskets, depending on size
Sample Length (if strip)	If cut into strips: approx. 100 mm × 25 mm per piece
Number of Strips	Enough to reach the total required surface area
Packaging	Sealed, non-contaminated polyethylene packaging
Important Notes:	
<ul style="list-style-type: none"> <li>• Gaskets and O-rings are often tested in their whole form unless the lab requires trimming.</li> <li>• Avoid using powdered or lubricated elastomers — they must be in pure, clean state.</li> </ul> <p>Use gloves and sterile bags when packaging to prevent contamination</p>	

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OPEN DATA / بيانات مفتوحة : Level of Confidentiality/درجة السرية

Date of Issue: 30/06/2025

Rev. No.: 01

Date of update: 30/06/2025

Page 5 of 13



Plastic Pipes (e.g., PE, PVC)

Requirement	Details
Sample Source	Internal surface of the pipe (water-contact side)
Sample Condition	New, unused, clean, representative
Sample Size	300 mm (30 cm) minimum per section
Number of Samples	At least 3 pipe sections (from different parts of a production batch)
Total Surface Area Required	Enough to yield a cumulative internal surface area of 2000–4000 cm <sup>2</sup>
Packaging	Individually sealed in clean polyethylene bags, avoiding contamination

Coatings and Linings

Requirement	Details
Sample Source	Internal, cured surface of the coating or lining - Apply the coating to inert panels (e.g., glass, stainless steel, GRP panels)
Sample Condition	Fully cured, new, unused, clean, and representative
Recommended Panel Size	Minimum: 200 mm × 300 mm (each panel)
Sample Size	2000–4000 cm <sup>2</sup> total surface area (depends on tests)
Number of Samples	3–5 panels (from separate batches, if possible)
Packaging	Sealed, non-contaminated polyethylene packaging with no contact between panels

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Level of Confidentiality/درجة السرية : OPEN DATA / بيانات مفتوحة

Date of Issue: 30/06/2025

Rev. No.: 01

Date of update: 30/06/2025

Page 6 of 13



#### GRP Water Tanks

Requirement	Details
Sample Source	Internal water-contact surface (tank wall, liner, or sheet)
Sample Condition	New, unused, clean, fully cured, and representative of production
Sample Format	Flat GRP panels or cutouts from actual tank wall
Recommended Sample Size	Each piece approx. 200 mm × 300 mm or A4-sized
Sample Size	2000–4000 cm <sup>2</sup> total surface area (depends on tests)
Number of Samples	3–5 pieces from different parts of tank recommended
Panel Thickness	Same as final product (e.g., typical GRP thickness: 4–10 mm)
Packaging	Sealed, non-contaminated polyethylene packaging

#### Sealants and Adhesives

Requirement	Details
Sample Source	Internal water-contact material (as used in joints, bonding, or sealing)
Sample Condition	New, unused, clean, , fully cured, representative
Sample Size	2000–4000 cm <sup>2</sup> total surface area (depends on tests)

Approved/Authorized by CQPSM

OPEN DATA / بيانات مفتوحة : Level of Confidentiality/درجة السرية

Date of Issue: 30/06/2025

Rev. No.: 01

Date of update: 30/06/2025

Page 7 of 13



Sample Format	Applied to inert panels (e.g., glass, stainless steel, GRP) to simulate actual use
Recommended Sample Size per Panel	200 mm × 300 mm (minimum) panel with uniform sealant/adhesive bead or film
Number of Samples	3–5 pieces from different parts of tank recommended
Sealant Thickness	Approx. 1–3 mm, mimicking typical application conditions
Packaging	Each panel should be sealed in non-contaminated polyethylene bags, clearly labeled

Flexible Hoses	
Requirement	Details
Sample Source	Internal water-contact surface (inner lining of the flexible hose)
Sample Condition	New, unused, clean, representative
Recommended Sample Length	300 mm (30 cm) per hose sample
Sample Size	2000–4000 cm <sup>2</sup> (based on inner diameter × length)
Number of Samples	At least 3 complete hose samples, preferably from different production batches
Packaging	Each sample should be sealed in non-contaminated polyethylene bags, labeled clearly

Approved/Authorized by CQPSM	OPEN DATA / بيانات مفتوحة : Level of Confidentiality/درجة السرية
Date of Issue: 30/06/2025	Rev. No.: 01
Date of update: 30/06/2025	Page 8 of 13





## PE Water Tanks

Requirement	Details
Sample Source	Internal water-contact surface (tank wall, liner, or sheet)
Sample Condition	New, unused, clean, representative
Recommended Sample Size	Approx. 200 mm × 300 mm (A4-sized panels)
Total Surface Area Required	2000–4000 cm <sup>2</sup> total from all samples combined
Number of Samples	3–5 pieces from different parts of tank recommended
Wall Thickness	As per actual product (usually 4–12 mm for rotationally molded tanks)
Packaging	Sealed, non-contaminated polyethylene packaging

### 5.3.3 Factory Production Control scheme (Internal Product Quality Assurance Plan)

The client shall have an internal product quality assurance plan giving details of the tests to be carried out at the factory.: This will include as a minimum, the following details: (1) location of sampling; (2) frequency of sampling; (3) quantities of samples; (4) tests to be carried out; (5) results acceptance criteria; and (6) responsible person to carry out the activity.

### 5.4 Marking

Each product must be permanently marked includes the following:

- 5.4.1 Manufacturer name or trademark
- 5.4.2 Production date and location
- 5.4.3 Maximum specific gravity of tank design (for tanks)
- 5.4.4 Product patch number
- 5.4.5 Nominal capacity (for tanks)
- 5.4.6 Classification (wherever applicable)

Approved/Authorized by CQPSM	Level of Confidentiality/السرية : OPEN DATA / بيانات مفتوحة
Date of Issue: 30/06/2025	Rev. No.: 01
Date of update: 30/06/2025	Page 9 of 13

 حكومة دبي GOVERNMENT OF DUBAI	<b>Organization/Unit:</b>	إدارة مختبر دبي المركزي Dubai Central Laboratory Department	الوحدة التنظيمية:
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## 6 GRANTING OF THE DCLD CERTIFICATION

- 6.1 The DCLD product conformity certificate and the authorization to use the DCLD conformity mark shall be granted upon conformance with all related provisions in the general rule.
- 6.2 Use of the DCL Conformity Mark shall be as per DM-DCLD-RD-DP21-2069 (IC).
- 6.3 Fees shall be as per DM-DCLD-RD-DP21-2074 (IC) and other relevant provisions in the general rule.
- 6.4 DCLD-CQPS shall carry out surveillance of certified clients based on the approved periodic plans and related provisions in the general rule.
- 6.5 Appeals, disputes, and complaints shall be in line with the relevant provisions in the General Rule

Approved/Authorized by CQPSM	Level of Confidentiality/درجة السرية : بيانات مفتوحة / OPEN DATA
Date of Issue: 30/06/2025	Rev. No.: 01
Date of update: 30/06/2025	Page 10 of 13

 حكومة دبي GOVERNMENT OF DUBAI	<b>Organization/Unit:</b>	إدارة مختبر دبي المركزي Dubai Central Laboratory Department	الوحدة التنظيمية:
	<b>Document Title:</b>	Certification of Non-Metallic Materials and Products for Use in Contact with Water Intended for Human Consumption as per BS 6920	عنوان الوثيقة:
	<b>Doc Ref.</b>	DM-DCLD-RD-DP21-2227 (IC)	رقم الوثيقة:

## Annex A

Under BS 6920-1:2000, the standard applies to non-metallic materials and products that come into contact with water intended for human consumption. The materials and products are grouped into several categories based on their function and form in the water supply system.

Below is a detailed list categorized accordingly:

### A1. Base Materials (Non-metallic)

Core materials from which products are manufactured:

- Elastomers (e.g. EPDM, NBR, silicone rubber)

Application	Common Elastomer Type
Gaskets, seals, and O-rings	EPDM (Ethylene Propylene Diene Monomer)
Valve seats and diaphragms	Nitrile Rubber (NBR)
Pipe coupling seals	Silicone rubber
Tap washers	Neoprene

- Thermoplastics (e.g. PVC, PE, PP, ABS)
- Thermosetting plastics (e.g. epoxy resins, polyester resins)
- Rubbers
- Composite materials (e.g. GRP – Glass Reinforced Plastic)
- Paints and coatings
- Adhesives and sealants
- Cements and cementitious products
- Lubricants and greases used in valves or fittings

Approved/Authorized by CQPSM	Level of Confidentiality/السرية : OPEN DATA / بيانات مفتوحة
Date of Issue: 30/06/2025	Rev. No.: 01
Date of update: 30/06/2025	Page 11 of 13



- Textiles and fibers used in filter systems or linings

## A2. Final Products and Components

### a. Pipes and Pipe Components

- Plastic pipes for drinking water distribution
- Flexible hoses
- Pipe linings and coatings
- Pipe seals and gaskets

### b. Fittings and Joints

- Valves and taps
- Connectors, couplings, elbows
- Push-fit and compression fittings
- Mixing valves

### c. Storage and Pressure Vessels

- GRP or PE Water tanks (cold and hot water)
- Water cisterns and header tanks
- Expansion vessels with non-metallic linings

### d. Sealing and Insulating Elements

- Gaskets, O-rings, and washers
- Sealing compounds
- Flange seals

### e. Coatings and Linings

- Internal linings of tanks and pipes
- Barrier coatings applied to metal or cement-based systems

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Level of Confidentiality/السرية : OPEN DATA / بيانات مفتوحة

Date of Issue: 30/06/2025

Rev. No.: 01

Date of update: 30/06/2025

Page 12 of 13



#### f. Appliances and Equipment

- Water meters
- Water filters and filter media (non-metallic)
- Water dispensers (with non-metallic parts in contact with water)
- In-line treatment units

#### g. Ancillary Products

- Lubricants used during installation
- Adhesives used in pipe joints
- Sealants applied around fittings

#### A3. Important Notes:

- Only non-metallic parts of a product are tested under BS 6920.
- If a product contains both metallic and non-metallic components (e.g. a valve), only the non-metallic surfaces in contact with water are subject to BS 6920 testing.
- Products used in hot and cold water systems are covered, including those used intermittently (e.g., domestic showers, hoses).

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Level of Confidentiality/السرية : OPEN DATA / بيانات مفتوحة

Date of Issue: 30/06/2025

Rev. No.: 01

Date of update: 30/06/2025

Page 13 of 13