ISO 10993-6_2026 VS ISO 10993-6_2016

BIOLOGICAL EVALUATION OF MEDICAL DEVICES - PART 6: TESTS FOR LOCAL

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Revision:01

Report Description	ISO 10993-6_2026 VS ISO 10993-6_2016
Industry Type	Medical device
Document Type	Pre-audit record
Summary of changes	Based on the clause-by-clause comparison, the 2026 edition introduces **expanded requirements for sample preparation, control selection, animal model use, and absorbable material evaluation**. The changes emphasize **Good Laboratory Practices (GLP), detailed documentation of physical properties, broader reference standards, and refined study protocols**, moving beyond the 2016 baseline

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1.0. Comparison Table: below describes the alignment clause-by-clause between the two versions of the standard. Status is **Full** / **Part** / **Not**.

2026 Clause	Requirement	2016 Clause	Requirement	Alignment	Remarks
4 Common provisions for implantation test methods **4.1**	The 2026 update reflects a clear regulatory intent: animal testing is discouraged and should only be used when no alternative methods can provide the required data. When such studies are unavoidable, they must be conducted in accredited facilities under recognized animal welfare regulations and ISO 10993-2. The emphasis is on Good Laboratory Practices or equivalent quality systems, with pilot implant studies allowed some flexibility provided the facility maintains adequate controls. Importantly, these provisions extend across the biological evaluation methods detailed in Annexes A–D, signaling broad applicability.	**4** Common provisions for implantation test methods **4.1** General	The 2016 version places strong emphasis on careful planning of animal studies to ensure maximum data extraction from each subject, aligning with ISO 10993-2, -11, and -16. It reinforces that such studies must be conducted in accredited facilities under recognized animal welfare regulations, with compliance tied to ISO 10993-2. Quality assurance is highlighted through the expectation of Good Laboratory Practices or equivalent systems. The scope of these provisions is broad, explicitly covering the test methods listed in Annexes A through D, underscoring their relevance across multiple biological evaluation contexts.	Part	2026 (4.1) specifies that all animal studies must be conducted under Good Laboratory Practices (GLP) or recognized quality assurance systems, while 2016 allowed for studies to be performed under good laboratory practices without the GLP specification
4.2 Preparation of Samples for Implantation **4.2.1**	The 2026 revision underscores the importance of testing implants in their finished state, with pilot studies as the only exception. It highlights that implant size and shape must be documented and justified, while Annexes A–D provide guidance on sample types for different sites. The clause reflects a strong focus on how physical and geometrical properties—such as density, hardness, porosity, and shape—affect tissue response, making thorough recording essential. Controls are expected to closely match test samples, though reference materials like HDPE remain acceptable. Flexibility is also introduced, allowing additional controls (such as placebo devices) to aid interpretation in complex cases like combination products.	**4.2** Preparation of samples for implantation **4.2.1**	The 2016 version reflects a straightforward focus: test samples and control materials are expected to follow ISO 10993-12 preparation standards, ensuring consistency in biological evaluation. It also highlights the importance of documenting and justifying implant size and shape, reinforcing traceability and scientific rigor in study design.	Part	2026 (4.2.1) expands the requirements by detailing that test samples for various implant sites are described in Annexes A, B, C, and D, and specifies that physical properties such as density and surface porosity must be recorded, whereas 2016 required only compliance with ISO 10993-12 without detailing specific properties.
4.2.2	The 2026 update emphasizes fidelity to the final product in implant testing, requiring that samples reflect actual manufacturing, cleaning, and sterilization processes. It acknowledges practical	**4.2.2**	The 2016 version reflects a straightforward regulatory intent: implants used in studies should mirror the final product, including manufacturing, processing, cleaning, and sterilization	Part	2026 (4.2.2) introduces the use of smaller test samples or test coupons consistent with ISO 10993-12 for devices that cannot be tested

2026 Clause	Requirement	2016 Clause	Requirement	Alignment	Remarks
	challenges with complex or oversized devices, allowing smaller coupons if they capture all tissue-contacting materials and finishes. For multi-material devices, representative sampling is critical, sometimes requiring multiple coupons to account for interactions. The clause also highlights the importance of considering synergies between materials, with annexes providing guidance on sample numbers and implantation periods to ensure structured evaluation.		steps. The expectation is that these conditions are confirmed in the study documentation, reinforcing traceability and ensuring that biological evaluations are representative of the actual device as marketed.		as is, while 2016 lacked this specification
4.2.3	The 2026 update reflects a pragmatic approach to scaffolds in tissue-engineered products: it acknowledges that final preparations pre-populated with cells or proteins may not always be appropriate for testing, given the complexity of immune responses. The notes highlight regulatory awareness of xenograft challenges, suggesting immune-deficient animal models as a justified option to avoid confounding reactions. At the same time, the clause recognizes jurisdictional differences, noting that products containing living cells are not universally classified as medical devices, underscoring the evolving regulatory landscape in this area.	**4.2.3**	The 2016 version reflects a cautious regulatory stance on scaffold materials in tissue-engineered products. It acknowledges that using final preparations pre-populated with cells or proteins may not always be appropriate, given the potential for complex immune reactions in animal models. This framing highlights early recognition of the challenges posed by xenograft responses and the need to carefully consider how scaffolds are tested, without overcomplicating study design.	Part	2026 (4.2.3) specifies that implantation in an appropriate immune-deficient animal can be an option to avoid the xenograft response, which is not mentioned in 2016; additionally, 2026 clarifies that products with living cells are not considered medical devices in all jurisdictions, while 2016 used 'and/or' for cells and proteins without this clarification.
4.2.4	The 2026 version reflects a practical regulatory intent for multicomponent devices that require curing before placement. It emphasizes that components should be mixed and allowed to set prior to implantation, ensuring that the biological evaluation reflects the actual state of the product as it will be used clinically. This approach reinforces fidelity to the final product and highlights the importance of testing under realistic conditions.	**4.2.4 For composite materials (e.g**	Composite materials can either be cured before implantation or polymerized in situ, but whichever method is used, it must be clearly documented and justified to safeguard performance and patient safety	Part	2026 (4.2.4) specifies that multicomponent material devices must be mixed before use and allowed to set prior to implantation, whereas 2016's clause referred to composite materials without detailing the mixing and setting process.
4.3 Selection of control samples	The 2026 update highlights that all implanted materials inevitably trigger some cellular response, making the choice of control samples central to evaluating tissue reactions. It emphasizes the			Not	New Requirement