

BIOREACTIVITY TESTING IN SINGLE USE TECHNOLOGIES; INDUSTRY POSITION PAPER

Nicole Hunter, Watson-Marlow Fluid Technology Solutions
nicole.hunter@wmfts.com
Monica Cardona, Merck KGaA
Ariana W. Gleisberg, ThermoFisher Scientific
Sade Mokuolu, Watson-Marlow Fluid Technology Solutions

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The industry shift towards Single Use Technologies (SUTs) has allowed therapeutic products to be brought to market faster by increased throughput, scalability and reduced risk of cross-contamination. However, biocompatibility testing (*in vitro* and *in vivo*) is currently required on plastics that come in to contact with drug product to be considered appropriate for use in manufacturing biopharmaceuticals. This perceived requirement was borne out of an absence of regulatory standards specifically for the use of SUTs, meaning that approaches were borrowed from related industries (e.g. medical devices). The new USP665 standard will come into effect in 2026 and offers a standardized way of assessing and testing SUT without the use of animal testing. Sustainability programs across the industry focusing on 3R or animal welfare initiatives are a key driver for removing this type of testing.

In September of 2021, BioPhorum conducted a survey to assess the use of the biocompatibility tests described in U.S. Pharmacopeia (USP) 87 Biological Reactivity Tests *in vitro*, and USP 88 Biological Reactivity Tests *in vivo*. A total of 26 responses were received from single use technology (SUT) manufacturers, regulatory and medical technician teams. Of those responses, 83% said they would support a change in testing for single-use components from USP 88 to USP 87, with 96% agreeing that an industry statement on the validity of this switch would be useful. This change would remove the requirement to test on animals, moving to a more sustainable method of testing, and focusing more on applicability and higher quality tests. An industry consensus and alignment on how to navigate this change is needed to eliminate uncertainty. There is already broad consensus that USP 88 can be discontinued, but firmly establishing this as industry best practice will make it more readily accepted by all stakeholders.

This paper summarizes the historical background to the current position, the methods described in USP87 and 88 and a proposal for how to move forward as an industry. It encourages an increased industry focus on more effective testing for plastics and widespread sharing of implementation plans and successes to drive change.