

Choosing a viral-inactivation detergent

Your step has to do four things now: reliably inactivate enveloped viruses, stay compliant and supplyable for your intended use, meet your animal-origin and sustainability requirements, and arrive documented per lot. Here is how to choose a detergent against all four.

By Sarah Gierl, Head of R&D, PAN-Celltech · TP-06 · Rev 1.0 · 20 Oct 2026 · for downstream process, QA and procurement teams · [Download the PDF](#)

Key takeaways

- **Start from the need, not the product.** A viral-inactivation detergent now has to satisfy four requirements at once: **performance** (reliable lysis of the enveloped-virus lipid membrane), **compliant supply for your intended use**, **animal origin and sustainability**, and **documentation per lot**.
- **The familiar chemistry no longer meets all four.** The octylphenol-ethoxylate chemistry many processes were built on is on the REACH Authorisation List (Annex XIV). Scientific research and development, including routine analysis, under controlled conditions and below 1 tonne per year remains exempt – but beyond that, its EU use requires an authorisation. It still performs the step, but it no longer meets the "compliant supply" requirement by default.
- **Teams specified by brand, not by requirement.** Where a detergent was written into a method years ago by brand name, the requirement it was meant to meet got lost. Choosing well again means writing the requirements down first, then matching chemistry to them.
- **Two chemistries, chosen by lifecycle stage.** An **alkyl polyglucoside (APG)** is not subject to REACH authorisation and can be supplied for GMP and production. The **octylphenol-ethoxylate** chemistry stays available for research and analysis where a validated method still calls for it.
- **PANclear is built around those two needs: PANclear APG (CT-01101) for GMP and production, PANclear Octoxynol (CT-01001) for research and analytical use** – both manufactured to GMP on a WFI-quality water base, with a Certificate of Analysis per lot. The PANclear APG grade you trial in a 100 ml bottle is the same grade supplied on request in single-use bags up to 1000 L, so scale-up is a volume change, not a product change.

The best way to choose a process reagent is to write down what the step needs before you name a product. For viral-inactivation detergents, that list just got one requirement longer.

In brief. Inactivating enveloped viruses by dissolving their lipid envelope with a non-ionic detergent is one of the most dependable steps in downstream processing. What has changed is not the step but the list of things the detergent has to satisfy: alongside performance, it now has to be suppliable and compliant for the use you intend, meet your animal-origin and sustainability requirements, and be documented to the standard of the product it ends up in. The chemistry most processes were built on – the octylphenol ethoxylates – meets the performance requirement but is subject to REACH authorisation for uses beyond research and development, so it no longer meets the full list. This paper puts the customer's requirements first, turns them into a short checklist you can choose any detergent against, and then shows the two chemistries – and the two PANclear grades – for research and for GMP production.

1. Start from what the step needs

A viral-inactivation detergent is easy to take for granted, because for years the choice was effectively made for you: one chemistry dominated, and teams simply specified it. That is exactly why it is worth restating what the step actually requires – because the requirements, not the habit, are what a good choice is measured against. Four of them matter.

What a viral-inactivation detergent has to deliver

1. **Performance.** Reliable lysis of the enveloped-virus lipid membrane under your real process conditions – concentration, time, temperature – with predictable clearance and compatibility downstream.
2. **Compliant supply for your intended use.** It has to be something you can lawfully buy and use for the purpose and at the scale you run, from research bench through to production, without a regulatory constraint blocking the step.
3. **Animal origin and sustainability.** For animal-free platforms, the animal-origin status of every reagent needs to be documented; environmental profile and biodegradability are increasingly specifications in their own right.
4. **Documentation.** GMP grade, a defined and characterised water base, and a Certificate of Analysis per lot – so the reagent carries its own evidence into your filing.

Write those four down and the choice becomes a matching exercise rather than a reflex. It also exposes something that habit had hidden: the chemistry the industry defaulted to was chosen, historically, against only the first requirement.

The other three were either assumed or did not yet exist as pressures. They exist now.

2. Why the default no longer meets the list

The detergent most processes were built on belongs to a single chemical family: the **octylphenol ethoxylates** (the ingredient name is octoxynol-9). It performs the step well, which is why it became the default. But octylphenol ethoxylates degrade in the environment to an octylphenol with endocrine-disrupting properties, and on that basis the chemistry class is on the [REACH Authorisation List \(Annex XIV\)](#). Since the 2021 sunset date, its use in the EU requires an authorisation – with an exemption for scientific research and development, including routine analysis, under controlled conditions and below 1 tonne per year ([Art. 56\(3\) REACH](#)). This applies to the **chemistry class**, independent of any manufacturer's own commercial decisions.

Measured against the four requirements, that means the default now **passes performance, but outside research and analysis it fails compliant supply** unless an authorisation covers the use. The step is untouched – dissolving an enveloped virus's lipid membrane with a non-ionic detergent is still valid – but one requirement has moved out of reach for production use, which is enough to force a choice.

There is a second, quieter challenge, and it is really a procurement one. Many processes specified this detergent years ago **by brand name**, not by requirement. When the requirement behind the name is no longer written down anywhere, teams feel boxed in: the brand is in the method and the filing, the chemistry under it is subject to authorisation, and it is no longer obvious what the step was ever asking for. The way out is simply to recover the requirement – performance, compliant supply, animal origin, documentation – and choose against it again.

3. The replacement checklist

Any candidate detergent, from any supplier, can be scored against the same short list. It is worth running even if you keep your current chemistry, because it tells you exactly where the gap is.

Requirement	The question to ask
Performance	Does it reliably inactivate enveloped viruses under our conditions, with known clearance and material compatibility? What data exist, and what do we need to generate ourselves?

Requirement	The question to ask
Compliant supply	Can we lawfully buy and use it for our intended use and scale, now and for the life of the process? Is the chemistry subject to authorisation or restriction under REACH or comparable frameworks?
Animal origin / sustainability	Is its animal-origin status documented? What is its environmental profile? Does that match our platform and our customers' expectations?
Documentation	Is it GMP grade, on a characterised water base, with a Certificate of Analysis per lot we can reference in our own dossier?

For a new or production-scale process, the second row is usually decisive: a chemistry that cannot be supplied compliantly for the intended use fails the step regardless of how well it performs. For research work, performance and continuity with a validated method may matter most. The checklist does not pick for you – it tells you which requirement is doing the deciding.

4. Two chemistries, two grades

Run the checklist and two sound answers emerge, chosen by where in the lifecycle you sit. PAN-Celltech has built a grade for each, under its own **PANclear** brand, both manufactured to GMP on a **WFI-quality water base** – and a 10% solution is about 90% water, so the water is part of the reagent – and released with a **Certificate of Analysis per lot**.

GMP & PRODUCTION

PANclear APG 10% Solution

Alkyl polyglucoside (APG)

A sugar-based, non-ionic detergent without octylphenol chemistry. It is **not** an octylphenol ethoxylate, so it is not subject to REACH authorisation (Annex XIV) and can be supplied at GMP and production scale (research use and for further manufacturing). Published data cover cell lysis; for enveloped-virus inactivation, performance should be confirmed in your own process.

Art. No. [CT-01101](#)

RESEARCH & ANALYSIS

PANclear Octoxynol 10% Solution

Octoxynol-9 (octylphenol ethoxylate)

The octylphenol-ethoxylate chemistry in GMP quality, kept available where a validated method or analytical procedure still calls for it. Supplied for research and analytical use in 100 ml bottles. Larger volumes and custom formats on request – every enquiry is reviewed against the intended use and the applicable REACH requirements.

Art. No. [CT-01001](#)

The pairing is deliberate. **PANclear APG** is the durable answer for new processes and anything heading to scale, because it is not subject to REACH authorisation – the requirement the default now fails outside research. **PANclear Octoxynol** keeps research and analytical work running on the familiar chemistry without forcing a method change. Both are manufactured by PAN-Celltech to GMP in an EU Annex 1 facility (a capability, not a certification) within an ISO 9001 quality system, for applications in which octylphenol ethoxylates have so far been used. PANclear APG is supplied in 100 ml bottles; 500 ml and 1000 ml bottles and single-use bags up to 1000 L are available on request.

PRACTICAL TIP

Trial small, scale without changing product

If a detergent is fixed in your SOP, you do not have to commit to a change blind. Order a [100 ml bottle of PANclear APG](#), run it in your existing process, and confirm it performs on your own material first. The grade you qualify at 100 ml is the **identical grade** supplied at production scale – 500 ml and 1000 ml bottles and single-use bags up to **1000 L** on request, same specification and Certificate of Analysis per lot. So once it is qualified in your process, scaling up is a **volume change, not a product change** – from trial bottle to production bag.

5. Said plainly

The point of this paper outlasts any one product. Reagent choices in biologics are best made against written requirements, not inherited habits – and for viral-inactivation detergents the requirement list has genuinely grown, so a choice that was settled a decade ago is worth making again on today's terms. Where the familiar chemistry still fits a research or analytical method, keep it; where a process needs compliant supply beyond research, a chemistry that is not subject to authorisation is the more robust choice. The honest boundary: the REACH status noted here is stated for the chemistry class as a factual compliance note, not legal advice, and the obligations for a given use, format and territory are confirmed per order.

Frequently asked questions

Including the questions customers most often ask us by brand name.

Is this the same detergent as Triton™ X-100? —

PANclear Octoxynol belongs to the same chemistry class. "Triton™ X-100" is a brand of The Dow Chemical Company for an octylphenol ethoxylate; the ingredient name for that chemistry is octoxynol-9. So a method that specifies "Triton™ X-100" is, at the chemistry level, specifying an octylphenol ethoxylate – the chemistry PANclear Octoxynol provides for research and analytical use. PANclear APG is a different chemistry, an alkyl polyglucoside, for GMP and production.

What is the REACH status of octylphenol ethoxylates such as Triton™ X-100? —

Octylphenol ethoxylates degrade to an endocrine-disrupting octylphenol, so they are on the REACH Authorisation List (Annex XIV). Since the 2021 sunset date, their use in the EU requires an authorisation; use in scientific research and development, including routine analysis, carried out under controlled conditions and below 1 tonne per year, is exempt (Art. 3(23) and Art. 56(3) REACH). This applies to the chemistry class under any of the substance's names, independent of any manufacturer's own commercial decisions. PANclear APG is an alkyl polyglucoside, a different chemistry, and is not subject to it.

We specified "Triton™ X-100" in our process years ago – are we boxed in?

No. The way out is to separate three things a brand name fused together: the brand (a trademark), the chemistry (an octylphenol ethoxylate, subject to REACH authorisation), and the function (dissolving the viral lipid envelope). Hold the function fixed and decide at the chemistry layer – keep the octylphenol-ethoxylate grade for a validated research or analytical method, or move to the alkyl polyglucoside chemistry for compliant supply beyond research.

Can we still get the octylphenol-ethoxylate chemistry (Triton™ X-100 / octoxynol) for an existing method?

Yes. PANclear Octoxynol keeps the octylphenol-ethoxylate chemistry available in GMP quality, supplied for research and analytical use in 100 ml bottles. Larger volumes and custom formats are available on request; every enquiry is reviewed against the intended use and the applicable REACH requirements.

Do you use genuine Triton™ raw material?

Yes. Both PANclear grades are formulated by PAN-Celltech from genuine Triton-branded raw material – Triton™ X-100 for PANclear Octoxynol and Triton™ CG-110 (an alkyl polyglucoside) for PANclear APG – for applications in which octylphenol ethoxylates such as Triton™ X-100 have so far been used. PANclear is PAN's own brand; Triton is a trademark of The Dow Chemical Company and PAN is not affiliated with or endorsed by Dow.

Can we trial PANclear APG at small scale before committing?

Yes. Order a 100 ml bottle, run it in your existing process, and confirm performance before you scale. The grade qualified at 100 ml is identical to the grade supplied at production scale – 500 ml and 1000 ml bottles and single-use bags up to 1000 L on request, with the same specification and Certificate of Analysis per lot – so scale-up is a volume change, not a product change.

What grade and documentation do PANclear products come with? —

Both PANclear grades are manufactured to GMP in an EU Annex 1 facility within an ISO 9001 quality system, on a WFI-quality water base, and released with a Certificate of Analysis per lot. PANclear APG is supplied for research use and for further manufacturing; PANclear Octoxynol for research and analytical use. Safety Data Sheets and further regulatory documentation are available on request.

Choose against your requirements, not a habit

Tell us which viral-inactivation step you run and at what scale. We will score it against the four requirements and scope the right PANclear grade, format and documentation around it.

info@pan-celltech.com

Triton™ is a trademark of The Dow Chemical Company. PANclear products are PAN-Celltech's own brand, formulated from genuine Triton-branded raw material; PAN is not affiliated with, sponsored by, or endorsed by Dow. Triton is named here only as the raw material used and in the factual REACH context.

Related: [TP-07 Switching off the REACH trap - a practical switching guideline](#)

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Manufactured to GMP in an EU Annex 1 facility within an ISO 9001 quality system (a capability, not a certification). REACH status is stated for the chemistry class as a factual compliance note, not legal advice; obligations for a given use, format and territory are confirmed per order. TP-06.