

PFAS Restrictions, Alternatives, Removal & Destruction Technologies 2027-2037

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Abstracts

The PFAS market is being reshaped less by demand than by regulation. What began as scattered restrictions on PFOA and PFOS has hardened into a system-wide reckoning: the EU's proposed universal REACH restriction, an expanding web of US state statutes, CERCLA hazardous-substance designation, and drinking-water limits that force utilities to act rather than monitor. The near-term impact is a bifurcation. On one side, "forever chemicals" face designed-in obsolescence across consumer products, textiles, food packaging, cosmetics and firefighting foams; on the other, regulators concede that fluoropolymers in semiconductors, hydrogen electrolyzers, medical devices and batteries have no drop-in substitute, so time-limited derogations will keep critical-use PFAS in circulation well past 2030.

That tension defines the commercial opportunity. Three markets are growing simultaneously and at different speeds. The alternatives market — non-fluorinated surfactants, PFAS-free coatings, binders and heat-transfer fluids — is the largest by breadth but the slowest to convert, gated by performance gaps and qualification cycles. The remediation and treatment market is the nearest-term revenue pool: granular activated carbon, ion exchange and reverse osmosis dominate today, sold increasingly as purification-as-a-service, while destruction technologies (electrochemical oxidation, supercritical water oxidation, hydrothermal alkaline treatment) remain lower-TRL and economically unresolved. The economics of destruction — high energy cost, uncertain throughput — are the sector's central open question.

The newest front is batteries. PVDF binders, PFAS electrolyte salts, separators and pack materials embed fluorochemistry deep in the lithium-ion supply chain, and a universal restriction would ripple through gigafactory economics via the end of NMP and a shift to aqueous and dry-electrode processing. This is a materials-substitution market

layered on top of the existing battery boom, with distinct winners among binder, electrolyte and fire-protection suppliers.

Looking to 2037, the outlook favours treatment spending first, remediation and destruction scaling as regulations bite, and alternatives compounding steadily as qualification barriers fall. US drinking-water treatment installations anchor the forecast, with Europe and Asia-Pacific following as their own limits tighten. The dominant risks are regulatory reversal — already visible in US federal rollbacks — and the cost curve of destruction. For incumbents and challengers alike, the strategic imperative is the same: treat PFAS exposure as a supply-chain liability to be mapped, priced and engineered out, not a compliance footnote.

This report is a comprehensive analysis of the global per- and polyfluoroalkyl substances (PFAS) landscape at the moment regulation is converting a chemistry problem into a market. It maps the full value chain — from the science and applications of non-polymeric and polymeric PFAS, through the tightening global regulatory framework, to the alternatives, removal and destruction technologies now competing to replace and remediate them. Uniquely, it integrates a dedicated analysis of PFAS in the lithium-ion battery supply chain, quantifying where fluorochemistry is embedded and how a universal restriction would reshape gigafactory economics.

The report combines regulatory intelligence, technology benchmarking with readiness-level and cost assessment, industry-by-industry substitution analysis, ten-year market forecasts, and profiles of the companies defining each segment. It is written for chemical producers, treatment and remediation providers, battery and materials manufacturers, investors, and regulatory and sustainability teams needing a defensible view of exposure and opportunity.

Contents include:

Executive summary with regulatory timelines, technology benchmarking and forecasts

Global regulatory landscape: EU REACH universal restriction, ECHA derogations, US federal and state law, and Asia-Pacific frameworks

Industry-specific PFAS usage across semiconductors, textiles, packaging, ion-exchange membranes, energy, 5G, automotive, electronics, medical devices, data centres and seals

PFAS alternatives by function and application

PFAS-free batteries: binders, electrolytes, separators, pack materials, fire protection, manufacturing and chemistry-by-chemistry analysis

PFAS degradation and elimination methods

PFAS treatment: incumbent and emerging removal, destruction technologies, and solids/soil treatment

Market analysis and 2027–2037 forecasts by segment, region and waste source

65 company profiles including 374Water, Aclarity, AquaBlok, Aquagga, Aqua Metrology Systems (AMS), AECOM, Aether Biomachines, Allonia, Axine Water Technologies, BioLargo, Cabot Corporation, Calgon Carbon, Chromafora, Clariant, Claros Technologies, Inc., CoreWater Technologies, Inc, Cornelsen Umwelttechnologie GmbH, Crystal Clean, Cyclopure, Desotec, Dmax Plasma, DuPont, ECT2 (Montrose Environmental Group), Element Six, Environmental Clean Technologies Limited, EPOC Enviro, Evoqua Water Technologies, Framergy, Freudenberg Sealing Technologies, General Atomics, Gradiant and more.....

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