

Datum: 8/4/2023

Polymer currently in use	Polymer composition	MW, Mn, MWD	Wh % oligomer	Electrical charge	Reactive functional groups (RFG)	Functional group equivalent weight (FEW)	Low MW leachables	Water/lipid solubility octanol/water partition	Particle size	Polymer stability	Thermal stability (vgt. Q, R)	Abiotic stability	Biotic stability	seals: use in oxidizing media	seals: demand for High purity product	seals: Operating Temperature: > 70°C	seals: Operating Temperature: > 150°C	internal in first isolation valves	jacket material for power cables, esp. case cables: High temperature	Sensor protection	tube liner: alum containing media	tube liner: Operating Temperature > 70°C	internals in phase separators	protective clothes and impregnation according to DIN EN 13034
PTFE	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS		DS	DS		DS
TBM-PTFE	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS						
poly(Polyvinylidenefluoride)	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS	DS						
(TBM - G.g. trade name: Kalsec)																				DS		DS		
Alternative Materials																								
Graphite											DS				DS	DS	DS	>	>	DS	DS	DS	DS	DS
Aramid, NBR (Nitrile Butadiene Rubber)											DS			DS	DS	DS	DS	>	>	DS	DS	DS	DS	DS
Vulcanised rubber											DS			DS	DS	DS	DS	>	>	DS	DS	DS	DS	DS
Vermiculite (mica slate)											DS			DS	DS	DS	DS	>	>	DS	DS	DS	DS	DS
Lithium-pg											DS			DS	DS	DS	DS	>	>	DS	DS	DS	DS	DS
PE											DS			DS	DS	DS	DS	>	>	DS	DS	DS	DS	DS
PVC											DS			DS	DS	DS	DS	>	>	DS	DS	DS	DS	DS

Legend for OECD criteria	
Physical criteria	1. structure & elemental composition; including CAS no.
NEW, Mo, MWSD	new content are used criteria for PLE assessment; MWSD → polydispersity index
Wt-% oligomer	Weight % of oligomers < 1000 Da
Electrical charge	ionic, amphoteric, nonionic; cationic polymers associated with aquatic toxicity
Reactive functional groups (RF G)	Atom or associated group of atoms in a chemical structure that is intended or can be reasonably expected to undergo facile chemical reaction
Functional groups equivalent weight (FGWE)	FGWE is defined as the ratio of Mo to the number of functional groups in the polymer
Polymer stability	inorganic or organic; that migrate (i.e. leech) out of the polymer
Water/solubility octanol water partition	Water solubility + extent to which a compound will dissolve in water; negligible water solubility = 1×10^{-6} to 1×10^{-7} ppt
Particle size	on inhalation are associated with adverse health effects. Polymer particles should be < 5 µm
Particle size	even into smaller particles is critical. Molecules with Mw>1000 Da are capable of crossing cell membranes
Thermal stability	at room temperature during disposal. Thermal stability testing may involve TGA
Abiotic stability	not. Abiotic degradation may involve sunlight, water or oxygen
Biotic stability	d by microorganisms under aerobized (aerobic) or anoxic (anaerobic) conditions
Legend for criteria concerning using PFAS in our plants	
Column 0, P, Q, R	Properties demanded for seals in different operating conditions
Column S	Data refers to valves, specially "First isolation valves"
Column T, U	Data refers to power cables and instrumentation of plants
Column V, W	Data refers to piping of plants
Column X	Data refers to internal of phase separators
Column Y	Data refers to protective clothes and their treatment. It is necessary to reimpregnate them with PFAS-containing spray after washing in order to keep their chemical repelling properties