

OECD polymer of low concern (PLC) criteria
OECD = Organisation for Economic Co-operation and Development

Polymer	Polymer composition	MW, Mn, MWD	Wt-% oligomer	Electrical charge	Reactive functional groups (RFG)	Functional group equivalent weight (FGEW)	Low MW leachables	Water/lipid solubility, octanol water partition	Particle size	Polymer stability	Thermal stability	Abiotic stability	Biotic stability
Fluoropolymer	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PTFE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
modified PTFE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Alternative Materials

PE	No	No						No		No	No		
PS		No						No		No	No		
PA 66		No			No	No		No		No	No		
PMMA		No			No	No		No		No	No		
PPS		No						No					
PI		No						No					

Symbols

Yes	fulfilling the PLC-criteria
No	not fulfilling the PLC-criteria

See Glossary on Table 2 for further information.

Glossary

Polymer composition

MW, Mn, MWD

Wt-% oligomer

Electrical charge

Reactive functional groups (RFG)

Functional group equivalent weight (FGEW)

Low MW leachables

Water/lipid solubility, octanol water partition

Particle size

Polymer stability

Thermal stability

Abiotic stability

Biotic stability

Polymer composition, structure & elements

Number average molecular weight and weight average molecular weight

Weight % of oligomers < 1000 Da

El. Ch. or ionic character can be: anionic, cationic, or zwitterionic

Atom or associated group of atoms in a polymer chain

FGEW is defined as the ratio of Mn to the number of functional groups

Chemical molecules, either inorganic or organic

Water solubility = extent to which a compound dissolves in water

Particles that are small enough to reach the bloodstream

Resistance to physical, chemical, biological, and environmental degradation

To be assessed when used as intended or in the environment

Polymers are stable, monomers are not stable

Is assessed by whether the polymer is degraded

ental composition; including CAS no.

oligomer content are used criteria for PLC assessment. MWD --> polydispersity index

; , cationic, amphoteric, nonionic; cationic polymers associated with aquatic toxicity

chemical structure that is intended or can be reasonable expected to undergo facile chemical reaction

re number of functional groups in the polymer

organic, that migrate (i.e. leach) out of the polymer

npound will dissolve in water; negligible water solubility $< 1 \times 10^{-6}$ mg/L = 1 ppt

the deep lung upon inhalation are associated with adverse health effects. Polymer particles should be > 5

ical transformation. Breaking down into smaller particles is critical. Molecules with $M_n < 1000$ Da are capabl

or in extreme temperature during disposal. Thermal stability testing may involve TGA

. Abiotic degradaton may involve sunlight, water or oxygen.

egraded by microorganisms under oxygenated (aerobic) or anoxic (anaerobic) conditions

μm

le of crossing cell membranes