



# LIST OF 'SCEPTICAL' MICROPLASTICS



Products on this list have been found to contain “skeptical microplastic” ingredients. These include but are not limited to Polyquaternium, Polysorbate, PEGs, and PPGs. By “skeptical microplastic” ingredients we mean synthetic polymers for which there is not enough information available. Some indicate toxicity to human life, some to aquatic environments, and for others we cannot find enough information.

PEGs and PPGs are polymers of ethylene oxide and propylene glycol respectively. The solubility, toxicity, persistence, and bio-accumulation of PEGs and PPGs is rather debated as it depends on the different chain lengths these polymers can have. For this reason, all PEGs and PPGs will be included in our orange list until further scientific research is available.

No.	Polymer	CAS	Reason	Source
1	Adipic Acid/Neopentyl Glycol Crosspolymer	-	Crosslinked polyester polyol hybrid powder with elasticity and flexibility which consists of microspheres of varying sizes	1
2	Bis-Diglyceryl Polyacyladipate-2	82249-33-0	Synthetic Polymer – Insoluble in water – no more data found (NDA)	2
3	Bis-PEG/PPG-14/14 Dimethicone	-	PEG/PPG	
4	Bis-PEG/PPG-20/5 PEG/PPG-20/5 Dimethicone	-	PEG/PPG	
5	BIS-PEG-18 Methyl Ether Dimethyl Silane	-	PEG	
6	Cetyl PEG/PPG-10/1	-	PEG/PPG	
7	Cetyl PEG/PPG-10/1 Dimethicone	-	PEG/PPG	
8	Dimethicone PEG-8 Meadowfoamate	-	PEG	
9	Dimethicone/Bis-Isobutyl PPG-20 Crosspolymer	-	PPG	
10	Dimethicone/Silsesquioxane Copolymer	68440-84-6	Dimethicone	3
11	Diphenyl Dimethicone/Vinyl Diphenyl Dimethicone/Silsesquioxane Crosspolymer	-	Dimethicone	4
12	Di-PPG-3 Myristyl Ether Adipate	-	PPG	
13	Hydrogenated Polydecene	68037-01-04	Synthetic Polymer – NDA	5
14	Hydroxypropylcocoate PEG-8 Dimethicone	-	PEG	
15	Laureth-4 (Peg-4 Lauryl Ether; Polyethylene Glycol 200 Lauryl Ether; Polyoxyethylene; Lauryl Ether)	-	PEG	
16	Lauryl PEG/PPG-18/18 Methicone	-	PEG/PPG	
17	Methacrylate/Glycol Dimethacrylate Crosspolymer	-	Synthetic Crosspolymer of methacrylate and ethylene glycol dimethacrylate monomers – NDA	

No.	Polymer	CAS	Reason	Source
18	Methoxy PEG/PPG-25/4 Dimethicone	-	PEG/PPG	
19	Microcrystalline Wax		A complex combination of long, branched chain hydrocarbons obtained from residual oils by solvent crystallization – Insoluble in water	6,7
20	Oleate Decylglucoside Crosspolymer	-	NDA	8
21	Olive Oil PEG-7 Esters	-	PEG	
22	PEG 200 Hydrogenated Glyceryl Palmate	-	PEG	
23	PEG 40 Stearate	-	PEG	
24	PEG 90M	-	PEG	
25	PEG/PPG/Polybutylene Glycol-8/5/3 Glycerin	-	PEG/PPG	
26	PEG/PPG-116/66 Copolymer	-	PEG/PPG	
27	PEG/PPG-17/16 Copolymer	-	PEG/PPG	
28	PEG/PPG-18/18 Dimethicone	-	PEG/PPG	
29	PEG/PPG-19/19 Dimethicone	-	PEG/PPG	
30	PEG-10 Dimethicone	-	PEG	
31	PEG-100	-	PEG	
32	PEG-100 Stearate	-	PEG	
33	PEG-12 Dimethicone	-	PEG	
34	PEG-120 Glucose Dioleate	-	PEG	
35	PEG-120 Methyl Glucose Dioleate	-	PEG	
36	PEG-120 Methyl Glucose Trioleate	-	PEG	
37	PEG-14M	-	PEG	
38	PEG-150 Distearate	-	PEG	
39	PEG-150 Pentaerythrityl	-	PEG	
40	PEG-150 Pentaerythrityl Tetrastearate	-	PEG	
41	PEG-150 Stearate	-	PEG	
42	PEG-16 Soy Sterol	-	PEG	
43	PEG-180	-	PEG	
44	PEG-192 Apricot Kernel Glycerides	-	PEG	
45	PEG-20 Methyl Glucose Sequistearate	-	PEG	
46	PEG-200 Hydrogenated Glyceryl Palmate	-	PEG	
47	PEG-23M	-	PEG	
48	PEG-2M	-	PEG	
49	PEG-3 Distearate	-	PEG	
50	PEG-30 Dipolyhydroxystearate	-	PEG	
51	PEG-4 Laurate	-	PEG	
52	PEG-4 Rapeseedamide	-	PEG	

No.	Polymer	CAS	Reason	Source
53	PEG-40 Castor Oil	-	PEG	
54	PEG-40 Glyceryl Cocoate	-	PEG	
55	PEG-40 Hydrogenated Castor Oil	-	PEG	
56	PEG-40 Sorbitan Perisostearate	-	PEG	
57	PEG-45M	-	PEG	
58	PEG-55 Propylene Glycol Oleate	-	PEG	
59	PEG-55 Stearate	-	PEG	
60	PEG-6 Caprylic/Capric Glycerides	-	PEG	
61	PEG-60 Hydrogenated Castor Oil	-	PEG	
62	PEG-7 Caprylic/Capric Glycerides	-	PEG	
63	PEG-7 Glyceryl Cocoate	-	PEG	
64	PEG-70 Mango Glycerides	-	PEG	
65	PEG-75 Stearate	-	PEG	
66	PEG-7M	-	PEG	
67	PEG-8 Beeswax	-	PEG	
68	PEG-8 Distearate	-	PEG	
69	PEG-8 Stearate	-	PEG	
70	PEG-80 Sorbitan Laurate	-	PEG	
71	PEG-90 GLYCERYL ISOSTEARATE	-	PEG	
72	PEG-90M	-	PEG	
73	Poloxamer 12	9003-11-6	Synthetic Copolymer of Polyethylene and Polypropylene Ether Glycol	9
74	Poloxamer 124	9003-11-6	Ibid.	Ibid.
75	Poloxamer 184	9003-11-6	Ibid.	Ibid.
76	Poloxamer 407	9003-11-6	Ibid.	Ibid.
77	Polyaminopropyl Biguanide (PHMB)	133029-32-0 32289-58-0 (unclear)	Synthetic polymer, soluble in water but proven toxic and hazardous, no more data available	10, 11
78	Polydecene	-	NDA	5
79	Polyethylene glycol (PEG)	-	PEG	
80	Polyethylene-glycol (PEG)	-	PEG	
82	Polyhydroxystearic acid	-	Bioaccumulative – NDA	12
82	Polynaphthalenesulfonate	9084-06-04	Synthetic Polymer - NDA	13
83	Polyperfluoromethylisopropyl Ether	69991-67-9	Synthetic polymer – declared as persistent and bioaccumulative in wildlife & humans (EWG)	14
84	Polypropylene glycol (PPG)	-	PPG	

No.	Polymer	CAS	Reason	Source
85	Polyquaternium-10	-	Synthetic Polymers – Soluble in water but toxic to aquatic environments (GHS)	a,15
86	Polyquaternium-16	-	Ibid.	Ibid.
87	Polyquaternium-39	25136-75-8	Ibid.	Ibid.
88	Polyquaternium-59	-	Ibid.	Ibid.
89	Polysorbate	-	Synthetic Polymers – NDA	16-18
90	Polysorbate 20	-	Synthetic Polymers – NDA	Ibid.
91	Polysorbate 60	-	Synthetic Polymers – NDA	Ibid.
92	Polysorbate 80	-	Synthetic Polymers – NDA	Ibid.
93	PPG-11 Stearyl Ether	-	PPG	
94	PPG-12	-	PPG	
95	PPG-14 Butyl Ether	-	PPG	
96	PPG-15 Ether	-	PPG	
97	PPG-15 Stearyl Ether	-	PPG	
98	PPG-2 Methyl Ether	-	PPG	
99	PPG-26-BUTETH-26	-	PPG	
100	PPG-3 Myristyl Ether	-	PPG	
101	PPG-51/Smdi Copolymer	-	PPG	
102	PPG-5-Ceteth	-	PPG	
103	PPG-5-Ceteth-20	-	PPG	
104	PPG-6-DECYLTETRADECETH-30	-	PPG	
105	PPG-9	-	PPG	
106	PVM/MA Copolymer (Poly(methyl vinyl ether-alt-maleic anhydride))	9011-16-9	Synthetic Polymer – GHS: (H340): May cause genetic defects – (H350): May cause cancer – (H373): May cause damage to organs through prolonged or repeated exposure	19
107	Sodium Hydroxypropylsulfonate Laurylglucoside Crosspolymer	-	Synthetic Crosspolymer formed by the reaction of laurylglucoside with 1,3-dichloro-2-propanol and sulfonated with 3-chloro-2-hydroxypropyl sulfonate – NDA	20
108	Synthetic Wax	-	Synthetic Polymer – NDA about its ingredients	21
109	Sodium Polynaphthalenesulfonate	-	Synthetic Polymer – NDA	13

<sup>a</sup> Polyquaternium -6 and -7 are included in the ECHA report as microplastics. However, we need specific indications that all polyquaterniums should be considered as microplastics. Until we have this further information all rest polyquaterniums will be kept in our Orange List.

No.	Polymer	CAS	Reason	Source
110	VP/Eicosene Copolymer	28211-18-9	Synthetic polymer – insoluble in water – derivative of from Alkylated polyvinylpyrrolidones	22
111	VP/Hexadecene Copolymer	32440-50-9	Synthetic polymer – insoluble in water – derivative of from Alkylated polyvinylpyrrolidones	22

## Sources

- (1) Adipic Acid/Neopentyl Glycol Crosspolymer - AXIOM SP-100  
<https://cosmetics.specialchem.com/product/i-axiom-ingredients-axiom-sp-100> (accessed Jan 21, 2019).
- (2) Bis-Diglyceryl Polyacyladipate-2 - SOFTISAN® 649  
<https://cosmetics.specialchem.com/product/i-ioi-oleo-softisan-649> (accessed Jan 21, 2019).
- (3) Dimethicone/Silsesquioxane Copolymer  
<http://www.thegoodscentscompany.com/data/rw1728191.html> (accessed Jan 21, 2019).
- (4) Diphenyl Dimethicone/Vinyl Diphenyl Dimethicone/Silsesquioxane Crosspolymer - KSP-300  
<https://cosmetics.specialchem.com/product/i-shinetsu-ksp-300> (accessed Jan 21, 2019).
- (5) 68037-01-4 | Polydecene, Hydrogenated [NF]. *ChemIDplus*.
- (6) ChemIDplus. 63231-60-7 | Wax, Microcrystalline.
- (7) Making Cosmetics. 63231-60-7 | *Microcrystalline Wax*.
- (8) Oleate decylglucoside crosspolymer  
<http://www.thegoodscentscompany.com/data/rw1796351.html> (accessed Jan 21, 2019).
- (9) POLOXAMER 184 - MASSOCARE PEL64 <https://cosmetics.specialchem.com/product/i-comercial-quimica-masso-massocare-pel64> (accessed Jan 21, 2019).
- (10) ChemIDplus. 27083-27-8 - PMBH - Guanidine, N,N"-1,6-Hexanediylobis.
- (11) Cosmetic Ingredient Review. *Safety Assessment of Polyaminopropyl Biguanide as Used in Cosmetics*, 2017.
- (12) Polyhydroxystearic Acid <https://www.truthinaging.com/ingredients/polyhydroxystearic-acid> (accessed Jul 17, 2019).
- (13) 29321-75-3 | Polynaphthalene Sulfonate. *ChemIDplus*.
- (14) EWG | Polyperfluoromethylisopropyl Ether  
[https://www.ewg.org/skindeep/ingredient/705088/POLYPERFLUOROMETHYLISOPROPYL\\_ETHER/](https://www.ewg.org/skindeep/ingredient/705088/POLYPERFLUOROMETHYLISOPROPYL_ETHER/).
- (15) Pubchem. Polyquaternium-16 (N-Vinylpyrrolidinone:3-Methyl-1-Vinylimidazolium Chloride (5:5)). 7.1.1.
- (16) Polysorbate 20  
[https://www.chemicalbook.com/ProductList\\_En.aspx?kwd=Polysorbate%2020%20](https://www.chemicalbook.com/ProductList_En.aspx?kwd=Polysorbate%2020%20) (accessed Jan 24, 2019).
- (17) Polysorbate 20 <http://www.thegoodscentscompany.com/data/rw1006081.html> (accessed Jan 24, 2019).
- (18) National Toxicology Program. NTP Toxicology and Carcinogenesis Studies of Polysorbate 80 (CAS No. 9005-65-6) in F344/N Rats and B6C3F1 Mice (Feed Studies). *Natl. Toxicol. Program Tech. Rep. Ser.* **1992**, 415, 1–225.
- (19) PVM/MA Copolymer - Poly(methyl vinyl ether-alt-maleic anhydride)  
[https://www.chemicalbook.com/ChemicalProductProperty\\_EN\\_CB3748204.htm](https://www.chemicalbook.com/ChemicalProductProperty_EN_CB3748204.htm) (accessed Jan 21, 2019).
- (20) Sodium Hydroxypropylsulfonate Laurylglucoside Crosspolymer  
<http://www.thegoodscentscompany.com/data/rw1793621.html> (accessed Jan 24, 2019).
- (21) Making Cosmetics. 8002-74-2 | *Synthetic Wax*.
- (22) Vida-Care from Lambson. *VP/Hexadecene Copolymer and VP/Eicosene Copolymer*.