

14.5 Comparison of organic and inorganic contaminants

Organic contaminants (associated additives or sorbed chemicals)

The comparison of research efforts and applicable regulations on plastic-associated organic contaminants provides a picture that is similar to the one with plastic polymers. The research efforts and applicable regulations are presented in Table 1.2.14.9 below.

This table also suggests that further research would be useful. First, to ensure in-depth study of the most prevalent and toxic plastic-associated organic contaminants. Second, to investigate consistency between research outcomes and regulations as well as across international regulations (see [Part 1, Section 3.7](#) for further discussion on this).

It is interesting to note that there is a greater research effort on some unregulated plastic-associated organic contaminants.

Table 1.2.14.9. Number of publications on organic contaminants (plastic-associated) in ASEAN+3.

Legend: Red = not regulated under any of the three conventions (London Convention/Protocol, Basel Convention and the Stockholm Convention); Green = under the regulation of at least 1 of these conventions. [A complete table can be found in [Appendix IV.](#)]

Organic contaminants (plastic-associated)			
Regulated	No. of papers	Unregulated	No. of papers
HBCDD	9	PAHs	10
PCB	9	Gamma-HCH	6
Alpha-HCH	6	HCB	5
Beta-HCH	6	Delta-HCH	5
DDTs	4	UV326/Tinuvin 326	4
PBDE	4	BPA and its analogues	3
PeCB	3	Irgafos168 and its 2 degradation products	3
Organophosphorus compounds	2	UV327	3
Aldrin	1	DDE	2
Chlordane	1	Irganox 1076	2
Dieldrin	1	NPs and its antioxidants, plasticisers, and degradation products	2
Endrin	1	UV320	2

Heptachlor	1	UV328	2
PFSO, its salts and PFSOF	1	BP-3	1
		BHT	1
		HEHA	1
		Irganox 1010	1
		Nonachlor	1
		PFOSA	1
		PAEs	1
		PHCs	1
		TBC	1
		UvinualMC80	1
		UV531/BP-12	1
		4-MBC	1
		<i>Pharmaceutical drugs</i>	
		TC	4
		SMX	3
		CP	2
		SMT	2
		AMX	1
		CEP	1
		PRP	1
		SER	1
		SDZ	1
		TMP	1
		TYL	1
		<i>Antimicrobial agents</i>	
		TCS	2
		<i>PPCPs</i>	
		SMs	1
		<i>Others</i>	
		Lubrication oil	1
		E2	1

Inorganic contaminants

The comparison of research efforts and applicable regulations on plastic-associated inorganic contaminants provides a different picture than that of plastic polymers and plastic-associated organic contaminants.

In particular, there are more publications on regulated contaminants than those that are not. However, not all regulated contaminants appear to have been studied in the context of marine plastics, despite them being considered as potential plastic-associated contaminants. A number of non-regulated contaminants have been studied and others have not.

This points to the need for further examination of the reasons for this and consideration of whether additional research and or regulation of potential contaminants is needed.

Table 1.2.14.10. Number of publications on inorganic contaminants (heavy metals and/or its compounds) in ASEAN+3.
 Legend: Red = not regulated under any of the three conventions (London Convention/Protocol, Basel Convention and the Stockholm Convention); Green = under the regulation of at least 1 of these conventions. [A complete table can be found in [Appendix IV.](#)]

Inorganic contaminants (heavy metals and/or its compounds)					
Regulated		No. of papers	Unregulated		No. of papers
Lead (Pb) and lead compounds		6	Manganese (Mn)		1
Cadmium (Cd) and cadmium compounds		5	Strontium (Sr)		1
Copper (Cu)		5	Tin (Sn)		1
Zinc (Zn)		3			
Arsenic (As)		2			
Chromium (Cr) and Hexavalent chromium compounds		2			
Nickel (Ni)		2			
Antimony (Sb); antimony compounds		1			
Mercury (Hg) and mercury compounds		1			