

Use of Bisphenol A and its alternatives in thermal paper in the EU 2014-16

Based on the European Commission's request ECHA surveyed manufacturers selling thermal paper in the EU on the use of Bisphenol A, Bisphenol S and other developers. The European Thermal Paper Association (ETPA) as well as most non-ETPA manufacturers provided such information. The results are presented below.

The overarching finding of the survey is that the use of BPS as an alternative to BPA in the manufacture of thermal paper has not been demonstrated to go up markedly for the period of 2014-2016. However, the share of developers other than BPA and BPS has noticeably increased for the same period.

ECHA will carry out the survey in the beginning of each year to update the results to monitor what alternative developers thermal paper manufacturers will use as a result of the restriction on the use of Bisphenol A that will enter into force on 2 January 2020.

Summary of information received from both ETPA and non-ETPA manufacturers (Total)

Information presented below is an amalgamation of data obtained from ETPA as well as individual non-ETPA companies. Tables 1a and 1b do not account for information gathered about import volumes of Hansol Paper – an important non-ETPA manufacturer of thermal paper. Information about the volumes of thermal paper imported into EU by Hansol Paper could be obtained through Eurostat. However, it was impossible to ascertain what ratio of the two developers – BPS and D8¹ – was used in the manufacture of the imported thermal papers.

Table 1a: Thermal paper placed on the EU market broken down by the developer used, 2014-16 (tonnes)

Developer	2014		2015		2016	
	Thermal paper	Developer used	Thermal paper	Developer used	Thermal paper	Developer used
Bisphenol A	209 646	2 812	209 869	2 800	204 182	2 743
Bisphenol S	11 882	156	11 326	133	15 175	202
Other developers	109 829	1 380	129 122	1 657	134 756	1 722
Total	331 357	4 349	350 316	4 589	354 114	4 667

¹ According to the information available at Hansol Paper's webpage and other internet sources, Hansol Paper's thermal paper is BPA-free and instead mainly uses BPS and D8 as developers.

Table 1b: Shares of developer used 2014-16

Developer	2014	2015	2016
Bisphenol A	65%	61%	59%
Bisphenol S	4%	3%	4%
Other developers	32%	36%	37%
Total	100%	100%	100%

Tables 1c and 1d presented below incorporate information gathered on Hansol Paper. This is done to provide a fuller picture of the thermal paper market in the EU, at least with respect to the actual volumes of thermal papers placed on the EU market. By means of secondary data it was possible to establish the volumes of thermal paper imported into EU by Hansol Paper for the period of 2014-2016. As information regarding the share of developers used in Hansol Paper's thermal paper could not be verified, the assumption can be made that the share of BPS and D8 – the two developers allegedly used by Hansol Paper - is 50-50 %. The assumption solely aims to provide a plausible scenario and as such should not be taken at face value.

Table 1c: Thermal paper placed on the EU market broken down by the developer used, 2014-16 (tonnes)

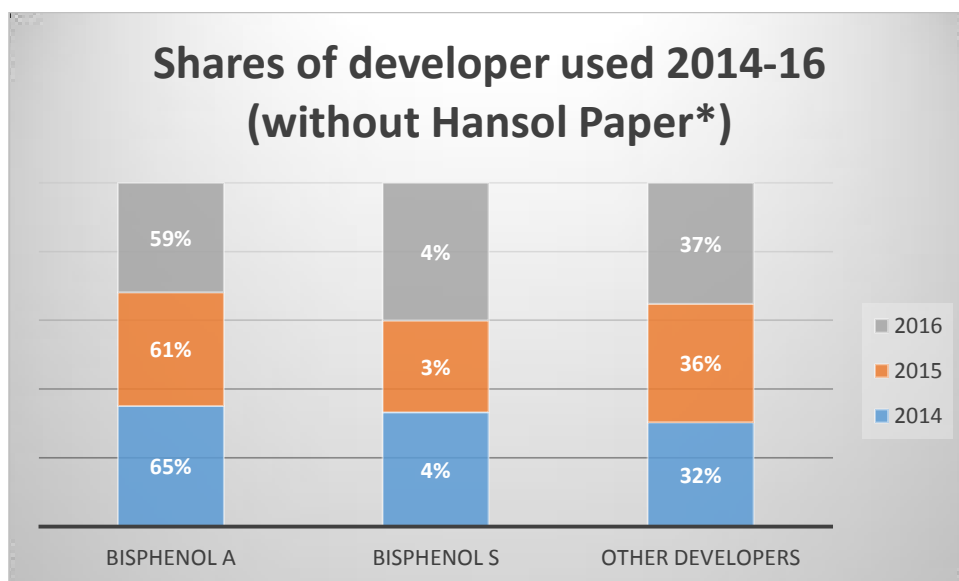
Developer	2014		2015		2016	
	Thermal paper	Developer used	Thermal paper	Developer used	Thermal paper	Developer used
Bisphenol A	209 646	2 812	209 869	2 800	204 182	2 743
Bisphenol S	19 860	274	19 304	243	26 426	368
Other developers	117 807	1 498	137 100	1 767	146 007	1 888
Total	347 314	4 585	366 273	4 809	376 616	4 999

Table 1d: Shares of developer used 2014-16

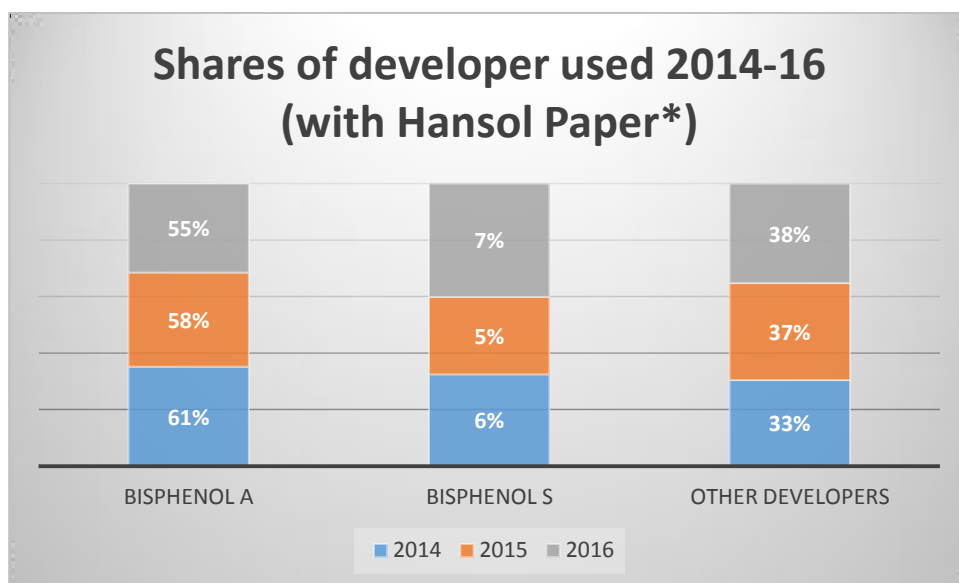
Developer	2014	2015	2016
Bisphenol A	61%	58%	55%
Bisphenol S	6%	5%	7%
Other developers	33%	37%	38%
Total	100%	100%	100%

Source: ETPA and non-ETPA manufacturers

Interestingly, incorporation of information on Hansol Paper, even when accounting for the existing uncertainties, does not significantly alter the overall market trends as demonstrated below.



Graph 1 – Share of developer used 2014-2016 (Total) – Hansol Paper not included



Graph 2 – Share of developer used 2014-2016 (Total) – Hansol Paper included

Summary of information received from ETPA

Table 2c: Thermal paper placed on the EU market broken per developer used, 2014-16 (tonnes)

Developer	2014		2015		2016	
	Thermal paper	Developer used	Thermal paper	Developer used	Thermal paper	Developer used
BPA	208 466	2 799	208 652	2 784	191 025	2 606
BPS	11 682	150	11 106	125	15 035	200
Other developers	73 938	806	89 865	1 029	93 688	1 065
Total	294 086	3 755	309 622	3 938	299 748	3 871

Table 2b: Shares of developer used 2014-16

Developer	2014	2015	2016
Bisphenol A	75%	71%	67%
Bisphenol S	4%	3%	5%
Other developers	21%	26%	28%
Total	100%	100%	100%

Source: ETPA

Dated 15.12.2017

Summary of information received from non-ETPA manufacturers

Of the 9 non-ETPA manufacturers contacted, 7 agreed to share information on their use of BPA, BPS and other developers. Two manufacturers - Appvion Inc. (USA) and Hansol Paper (South Korea) - declined to share the information with ECHA. The former stated the lack of resources as the main reason for not sharing the information. The latter identified the business confidential nature of such information as their rationale.

Table 3a: Thermal paper placed on the EU market broken down by the developer used, 2014-16 (tonnes)

Developer	2014		2015		2016	
	Thermal paper	Developer used	Thermal paper	Developer used	Thermal paper	Developer used
Bisphenol A	1 180	14	1 217	16	13 157	137
Bisphenol S	200	6	220	8	140	2
Other developers	35 891	574	39 257	628	41 068	657
Total	37 271	594	40 694	652	54 365	796

Table 3b: Shares of developer used 2014-16

Developer	2014	2015	2016
Bisphenol A	2%	2%	17%
Bisphenol S	1%	1%	0%
Other developers	97%	96%	83%
Total	100%	100%	100%

Tables 3c and 3d incorporate information gathered on Hansol Paper's imported volumes of thermal paper into the EU territory.

Table 3c: Thermal paper placed on the EU market broken down by the developer used, 2014-16 (tonnes)

Developer	2014		2015		2016	
	Thermal paper	Developer used	Thermal paper	Developer used	Thermal paper	Developer used
Bisphenol A	1 180	14	1 217	16	13 157	137
Bisphenol S	8 179	124	8 199	118	11 391	168
Other developers	43 870	692	47 236	738	52 319	823
Total	53 228	830	56 651	872	76 867	1 128

Table 3d: Shares of developer used 2014-16

Developer	2014	2015	2016
Bisphenol A	2%	2%	12%
Bisphenol S	15%	14%	15%
Other developers	83%	85%	73%
Total	100%	100%	100%

Source: non-ETPA manufacturers²

² See Annex 1

Annex 1

Contacted non-ETPA manufacturers

Name	Country
GHS Gold HuaSheng Paper Co. Ltd	China
Chenming Paper	China
Guandong Guan hao High-Tech Co. Ltd	China
Ricoh Industrie France SAS	France
Blumberg GmbH & Co KG	Germany
Nippon Paper Industries Co., Ltd	Japan
Hansol Paper	South Korea
Smith and McLaurin Ltd.	UK
Appvion, Inc. (USA)	USA