

Solvent VOC Emission Inventories 2019

ESIG has finalised its 2019 solvent volatile organic compounds (VOC) emission inventories and results is in line with previous numbers: Solvent VOC emissions have stabilized in the EU28 since 2008 staying around 2000 ktonnes.

- Overall trend (ktonnes)

year	ESIG VOC emissions	ESIG VOC emissions with ethanol	EEA inventories*	EEA vs ESIG difference
2008	2159	na	3322	35%
2009	1917	na	3010	36%
2013	1978	na	2652	25%
2015	1981	na	2598	24%
2016	1628	1968	2586	24%
2017	1613	1946	2638	26%
2018	1813	2113	2621	19%
2019	1765	2073	na	

* EEA inventory data are based on country submissions in 2020 (2019 value not yet available).

Both ESIG and EEA data show stabilized emission level in the 2010s, with a difference between the two datasets being around 25%. In 2018 reporting however, the difference decreased to ~20%.

The above table contains adapted emissions for 2016 onwards with ethanol included. All changes/additions in **RED**

- **Background information & outlook**

This paper presents the final numbers.¹ The ESIG solvents emission inventories have been conducted with the support of TNO.

As usual, **Member States can obtain more information upon request for domestic solvent use** (NFR category 2.D.3.a), according to the matching table from the European Monitoring and Evaluation Programme (EMEP) /European Environmental Agency (EEA) Guidebook (2019 edition) provided the data is not confidential (see appendix 1) . Furthermore, **ESIG can provide per capita Emission Factors per country for domestic solvent emissions** based on our data.

Since ESIG data are based on real data from EU solvents manufacturers, the ESIG emission inventories remain a valuable source of information and can also be **used for comparisons**.

¹ For more information on the method used, former technical papers can be consulted: https://www.esig.org/wp-content/uploads/2018/03/201802_ESVOC_techncial-paper-solvent-VOC-emisisions-2015_final-1.pdf
<https://www.esig.org/wp-content/uploads/2019/03/Atmospheric-Environment-John-VOC-article-201903.pdf>



ESIG Solvent VOC Emissions Numbers 2019 per country

Summary of results for aggregated country groups applied by ESIG 2019			
Countries	TOTAL EMISSIONS BY COUNTRY OF PRODUCTION Hydrocarbon+Oxygenated solvents (ktonne/country)	IMPORT/EXPORT Corrections	Emissions NMVOC in ktonne/country
Austria	34.12	24.47	58.59
Belgium + Luxembourg	168.22	-136.31	31.91
Bulgaria + Romania	7.78	47.41	55.19
Croatia	1.29	1.75	3.03
Cyprus	0.16	0.38	0.54
Czech Republic	12.66	48.50	61.16
Denmark	18.59	-0.04	18.55
Estonia + Latvia	1.96	4.55	6.51
Finland	15.56	27.28	42.83
France	313.61	-0.12	313.49
Germany	552.21	-327.52	224.69
Greece	12.08	18.95	31.03
Hungary	8.60	20.52	29.12
Ireland	10.92	6.66	17.58
Italy	239.13	144.50	383.63
Lithuania	3.34	-1.52	1.81
Malta	0.06	2.74	2.80
Netherlands	167.92	-93.21	74.72
Poland	58.00	73.44	131.44
Portugal	11.88	2.59	14.47
Slovakia	3.22	3.75	6.96
Slovenia	13.46	12.27	25.73
Spain	163.74	101.78	265.52
Sweden	29.20	17.17	46.37
United Kingdom	225.43	0.02	225.45
Total EU-28	2073.15	0.00	2073.15

Data on import/export are taken from J. Pearson for 2016 & 2017, based on adjusted 2015 import/export. For 2018 and 2019, import/export estimates are based on the import and export estimates from the year before which are adjusted for the increase/decrease in VOC emissions.

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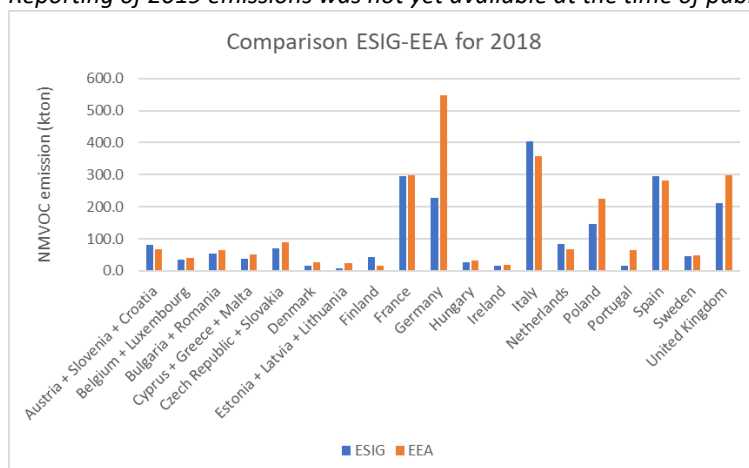
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Comparison to EEA / reported emissions by Member States 2018

countries	ESIG	EEA
Austria + Slovenia + Croatia	80.8	66.3
Belgium + Luxembourg	35.4	39.7
Bulgaria + Romania	54.3	66.1
Cyprus + Greece + Malta	38.2	51.9
Czech Republic + Slovakia	70.3	89.7
Denmark	16.9	27.2
Estonia + Latvia + Lithuania	8.9	24.0
Finland	43.8	16.0
France	295.0	298.2
Germany	227.0	546.8
Hungary	26.5	30.9
Ireland	16.0	18.7
Italy	403.4	357.0
Netherlands	83.0	67.6
Poland	146.0	225.6
Portugal	15.6	65.3
Spain	295.0	282.6
Sweden	44.9	48.9
United Kingdom	212.1	298.8
Total EU-28	2113.3	2621.5

Note: reported data from Member States (EEA) are based on the reporting to EMEP in 2020. Reporting of 2019 emissions was not yet available at the time of publication of this technical paper.



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Appendix 1 Mapping table – REACH to NFR

REACH end-use sector	2D3a	2D3b	2D3c	2D3d	2D3e	2D3f	2D3g	2D3h	2D3i
Agrochemical uses	100 %								
Blowing agents									100 %
De-icing	50 %								50 %
Binder and release agents									100 %
Cleaning industrial and leather treatment					100 %				
Cleaning — professional consumer	100 %								
Coatings — industrial and adhesives, inks				80 %				15 %	5 %
Coatings — professional/consumer and thinners, paint industry	30 %			70 %					
Functional solvents (including solvents used in chemical processes, e.g. process aids, intermediates, extraction, dewaxing agents)							100 %		
Metal working/rolling oils/lubricant uses									100 %
Oil field chemicals, drilling, mining, extraction									100 %
Polymers processing (including rubber-tyre production) and industrial resins, synthetic rubber, process							100 %		
Road and construction		100 %							
Use as fuel/combustion and fuel additives									100 %
Water treatment									100 %
Other consumer uses (household, aerosols, cosmetics)	100 %								
Pharmaceuticals manufacturing							100 %		
Others — please specify below									100 %

Source : EMEP/EEA air pollutant emission inventory guidebook 2019, chapter 2.D.3.a Domestic solvent use including fungicides p.25

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