

VOC INVENTORIES

SOLVENTS



ESIG INVENTORIES

BASICS

1. Info is collected from ESIG members on sales volumes into REACH use markets per Member State (*we just launched data call in for 2021 data*)
 2. Apply air emission factor for that Use Sector
 3. Apply Import/Export balances
- The Solvent VOC Emissions for each Use Sector in each country is obtained by multiplying the values in Operation 1 by the emissions factors in Operation 2
 - Cover years 2008 /2009 - 2013/ 2015 onwards
 - Full method description in [TECHNICAL PAPER 2015](#) & in “Atmospheric Environment” by J Pearson & included in Febr 22in [2.D.3 EMEP/EEA Guidebook, Additional Guidance: Solvent and Product Use](#)



ESIG INVENTORIES

SHORTCOMINGS

- **Import/export** – no further improvement possible at this stage
- **Confidentiality!**



ESIG INVENTORIES

DOMESTIC USE

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.**

Member States can obtain more information upon request for

- full details per REACH category **provided data is not confidential**
- ESIG can provide **per capita Emission Factors per country for domestic solvent emissions based on our data.**



ESIG INVENTORIES

DOMESTIC USE

Domestic use of solvents emission factors :

- derivation is based on the annex 1 Mapping table: REACH to NFR from the EMPE/EEA air pollutant emission inventory guidebook 2019 , chapter 2.D.3.a.Domestic solvent use.
- FIVE REACH end use categories are attributed entirely or partially to 2D3A Domestic solvent use:

Agrochemical uses/ De-icing/ Cleaning – consumer/professionals / Coatings – consumer/professionals/ Other consumer uses

In order to allow error margins from categories (and despite being reported separately) **emission numbers are taken into account at a 100%.**



Table A1.1 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 %

Domestic use of solvents EF:

- derivation is based on the annex 1 Mapping table: REACH to NFR from the EMPE/EEA air pollutant emission inventory guidebook 2019 , chapter 2.D.3.a.Domestic solvent use.
- FIVE REACH end use categories are attributed entirely or partially to 2D3A Domestic solvent use:
- in order to allow error margins from categories (and despite being reported separately) **emission numbers are taken into account at a 100%.**



ESIG INVENTORIES

SPAIN 2018	emission factor <i>see technical paper</i>	2018		
		SALES ton	Emission_before_IE ton	Emission_after_IE ton
Agrochemical uses	1	CONF	CONF	CONF
Binder and Release Agents	1	CONF	CONF	CONF
Blowing Agents	1	CONF	CONF	CONF
Cleaning Industrial + Leather treatment, electronics, semiconductor	0.75	22,277.41	15,594.19	24,233.29
Cleaning-Professional Consumer	0.5	1,054.86	527.43	814.96
Coatings-Industrial + adhesives	0.75	120,430.61	90,322.95	140,414.97
Coatings-Professional/Consumer	0.75	20,743.75	15,557.81	24,194.21
De-Icing	1	1,417.05	1,417.05	2,201.20
Functional Solvents (inc. solvents)	0.1	62,024.80	6,202.48	9,606.82
Metal working/rolling oils/liquids	0	9,693.62	-	-
Oil field chemicals-drilling-fluids	0	CONF	-	-
Other consumer uses (household)	0.75	CONF	CONF	CONF
Pharmaceuticals manufacture	0.3	20,216.27	6,064.88	9,427.09
Polymers Processing (inc. rubber)	0.1	35,313.83	3,531.38	5,485.14
Road and construction	0.95	CONF	CONF	CONF
Use as Fuel/Combustion + Fuel additives	0.025	CONF	CONF	CONF
Water Treatment	0.05	CONF	CONF	CONF
Ethanol	0.9	32.12	28.91	45.29
Total		378,273.27	187,936.82	292,058.70

2018
NM VOC kt
76.30
Population:
46.66
EF for domestic:
1.635



ESIG INVENTORIES

SPAIN 2019 End-use_sector	Sales in [ton]	emission factor (see technical paper)	NM VOC (ton) before IE	NM VOC emission [ton] after IE
Agrochemical uses	7102.03	1	7102.03	11516.41
Blowing Agents	8821.66	1	8821.66	14304.91
De-ink	2175.73	1	2175.73	3528.10
Binders	2078.84	1	2078.84	3370.98
Cleaners	12861.65	0.7	9003.16	14599.21
Cleaners	2528.61	0.5	1264.30	2050.15
Coatings	82913.35	0.75	62185.01	100837.12
Coatings	14336.20	0.75	10752.15	17435.33
Functional fluids	46657.72	0.1	4665.77	7565.86
Metal cleaning	5843.71	0	0.00	0.00
Oil finishing	4371.07	0	0.00	0.00
Polymer synthesis, industrial resins,	25804.69	0.1	2580.47	4184.40
Road marking	853.64	0.95	810.96	1315.02
Use as Fuel, Combustion + Fuel additives	14967.61	0.0025	37.42	60.68
Water Treatment	3284.18	0.05	164.21	266.28
Other consumer uses (household, aerosols, cosmetics)	20306.59	0.9	18275.93	29635.63
Pharmaceuticals manufacturing	15770.79	0.3	4731.24	7672.02
Ethanol	32324.87	0.9	29092.38	47175.23

2019

NM VOC kt

64.17

Population 2019:

47.33

EF for domestic:

1.356



ESIG INVENTORIES

DOMESTIC USE

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.**

ESIG can provide **per capita Emission Factors per country for domestic solvent emissions based on our data**

We propose

- to further update the domestic solvent chapter in the EMEP/EEA guidebook
- use a three year average (or more) to add EF per country into the EMEP guidebook



	2018	2019	2020	AVERAGE
AT	1.323	1.572	1.300	1.399
BE	0.518	0.621	0.314	0.484
BG	0.262	0.210	0.258	0.243
HR	0.571	0.625	0.387	0.528
CY	0.241	0.206	0.093	0.180
CZ	1.207	1.446	1.212	1.288
DK	1.148	1.335	1.628	1.370
EE	0.564	0.785	0.978	0.776
FI	0.877	2.197	1.896	1.657
FR	0.750	1.102	0.825	0.892
DE	0.710	0.559	0.494	0.588
GR	0.422	0.550	0.563	0.512
HU	0.556	0.695	0.569	0.607
IE	0.447	0.433	0.584	0.488
IT	1.126	1.117	0.998	1.080
LV	0.380	0.243	0.299	0.307
LT	0.469	0.394	0.467	0.443
LU	0.161	0.197	0.406	0.255
MT	0.659	0.252	0.422	0.444
NL	0.951	1.109	1.032	1.031
PL	0.380	0.633	0.483	0.499
PT	0.475	0.547	0.471	0.498
RO	0.182	0.279	0.251	0.237
SK	1.565	1.028	1.344	1.312
SI	0.411	0.972	0.564	0.649
ES	1.402	1.337	1.291	1.343
SE	0.754	1.389	1.073	1.072
UK	0.672	0.658	0.645	0.658
EU28 average	0.790	0.873	0.770	0.811

- Yellow: without ethanol
- with ethanol & at which % *to be discussed*
- Current:
 - 1.8 kg/capita for western EU Member States
 - 1.2 kg/capita for other countries





Cornelia Tietz

cti@cefic.be

Rue Belliard 40/b15, B-1040

Brussels

www.esig.org

EU Transparency Register n° 64879142323-90

