

Environmental performance indicators

Key performance indicators		2009 (restated in 2018)	2015 (restated in 2018)	2016 (restated in 2018)	2017 (restated in 2018)	2018
Energy						
Energy (GJ)	Direct energy (from primary sources ¹)		1,708,571	1,738,392	1,894,276	1,898,824
	Indirect energy: purchased electricity & steam		950,117	1,029,408	991,678	1,010,347
	Total energy		2,658,688	2,767,800	2,885,954	2,909,171
Energy efficiency (GJ/tonne of production)	Direct energy efficiency		4.46	4.37	4.22	4.19
	Indirect energy efficiency		2.48	2.59	2.21	2.23
	Total energy		6.94	6.95	6.43	6.43
Emissions						
GHG emissions (tonnes)						
Scope 1	From direct energy sources		99,892	100,662	108,102	108,706
Scope 2	From indirect energy sources		88,877	87,217	67,370	53,896
	Total scope 1 + 2 GHG emissions		188,769	187,879	175,472	162,602
Scope 3	Business travel	-	10,056	11,102	12,303	12,889
	Employee commuting	-	15,296	15,756	16,530	14,172
	Packaging of finished products ²	-	55,605	58,249	58,575	59,698
	Upstream transportation and distribution ²	-	23,196	25,356	26,347	29,523
	Outbound product to customers ²	-	30,879	31,431	32,844	31,656
	Outbound intercompany deliveries ²	-	11,813	15,802	12,717	14,127
	Waste generated in operations	-	15,369	16,748	16,094	17,099
	Fuel and energy related activities	-	79,110	79,505	62,921	58,262
	Raw materials ²	-	1,059,883	1,138,972	1,232,676	1,329,295
	Indirect materials & services (excluding packaging) ²	-	143,569	137,860	156,186	167,387
	Capital goods ²	-	48,696	42,927	69,611	82,464
	Total scope 3 GHG emissions		1,493,472	1,573,708	1,696,804	1,816,572
	Total GHG emissions		1,682,241	1,761,587	1,872,276	1,979,174
GHG emissions efficiency³ (tonnes of GHG/tonne of production)	Scope 1: from direct energy sources	-	0.26	0.25	0.24	0.24
	Scope 2: from indirect energy sources	-	0.23	0.22	0.15	0.12
	Total GHG emissions	-	0.49	0.47	0.39	0.36
Waste						
Hazardous waste (tonnes)	Incinerated		8,557	9,543	8,962	9,645
	Incinerated with energy recovery ⁴		4,132	3,989	4,184	3,630
	Landfilled		318	108	105	128
	Recycled		17,357	16,744	17,310	21,136
	Total hazardous waste		26,232	26,395	26,377	30,909
Non-hazardous waste (tonnes)	Incinerated		2,230	2,544	2,738	2,845
	Incinerated with energy recovery ⁴		1,076	719	455	546
	Landfilled		6,412	6,704	6,892	6,984
	Recycled		27,826	28,574	32,485	31,959
	Total non-hazardous waste		36,468	37,822	42,115	41,788
	Total incinerated and land-filled waste (HZ and NHZ)		17,517	18,899	18,697	19,602
Total hazardous and non-hazardous waste (tonnes)		62,700	64,217	68,492	72,697	
One-off waste (tonnes)		2,219	1,367	4,183	7,215	
Waste efficiency⁵ (kg of waste/tonne of production)		45.7	47.5	41.7	43.3	

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Water						
Water intake (m³)	Municipal water	2,286,999	2,359,818	2,539,275	2,609,597	2,478,213
	Ground water	1,074,035	1,390,267	1,307,576	1,335,663	1,258,123
	Total municipal and ground water	3,361,034	3,750,085	3,846,851	3,945,260	3,736,336
	Surface water	7,432,649	5,006,361	5,225,273	4,925,910	5,371,098
	Total water⁶	10,793,683	8,756,446	9,072,124	8,871,170	9,107,434
Water efficiency⁷ (m³/tonne of production)		10.91	9.78	9.66	8.79	8.25
Water discharge (m³)	To the environment w/o biological treatment	–	–	4,634,189	4,260,564	4,666,399
	To the environment after biological treatment	–	–	2,005,856	2,029,078	2,089,294
	To external treatment facility w/o pre-treatment	–	–	416,126	553,116	532,823
	To external treatment facility with pre-treatment	–	–	1,703,562	1,633,523	1,575,193
	Total discharged water	–	–	8,759,733	8,476,281	8,863,709
COD (tonnes)	COD load of water discharged to the environment	–	–	487	608	918
Other data						
	Nitrogen oxides – NO _x (tonnes) ⁸	–	–	76.90	84.07	83.03
	Sulphur dioxide – SO ₂ (tonnes) ⁸	–	–	0.92	0.94	1.19
	VOC (tonnes)	–	–	521	469	292
	CFC inventory (kg)	–	–	11,774	11,748	10,106
	CFC 11 equivalent inventory (kg)	–	–	653	655	562
	CFC loss-replacement (kg)	–	–	1,335	773	1,055
	CFC 11 equivalent loss/replacement (kg)	–	–	73.44	42.38	58.09
Production						
	Production quantities (tonnes)	308,060	383,353	398,043	448,726	452,696

1. Includes natural gas (0.0345 GJ/m³), light fuel (36.12 GJ/m³), heavy fuel (39.77 GJ/m³), liquid petroleum gas (22.65 GJ/m³), town gas (0.0186 GJ/m³).

2. These numbers do not include data from our production site in Volketswil.

3. Includes only scope 1 and scope 2.

4. Among the quantity of HW and non-HW incinerated, this is the quantity incinerated with energy recovery (in tonnes) on condition that at least 75% of energy is recovered.

5. Includes incinerated and land-filled waste (HZ and NHZ).

6. Includes sanitary, cooling and process water.

7. Includes municipal and groundwater.

8. Quantity is calculated by multiplying the annual fuel consumption by the corresponding emission factor for fuel type.

How to read our performance indicators

Baseline recalculation

In order to enable a meaningful comparison of environmental performance over time, Givaudan has established a standard process, based on the GHG Protocol, to recalculate its baseline indicators in case of structural changes such as acquisitions, and changes in calculation methodology and inventory boundaries.

In this way to compare performance on a like-for-like basis over time. The process includes definitions of recalculation triggers and the process of reporting the information. Thanks to this guidance, Givaudan is able to track its environmental performance in a transparent manner and with confidence that the data are accurate despite the changes related to the business growth.

Baseline years

In this report we use two baseline years to show our performance indicators, 2009 and 2015. The CO₂, energy, waste and targets were set against a 2009 baseline, which we met in 2015. This led to the publication of strengthened targets, against a 2015 baseline. For water the 2009 baseline year is still valid. For production volumes, both 2009 and 2015 are reported since the ratios are calculated using the data of the accurate baseline year.

In this report the baseline recalculation applies only to GHG emission numbers as these are the only absolute targets published by the Company. To consider the impact of 2015 and 2016 acquisitions we recalculated the figures up to the 2015 baseline. No environmental data of our 2017 and 2018 acquisitions are included in this report.