

Environmental performance indicators

Our reporting process

The FY2022 data published in the Sustainability Report 2022 are actuals for the period from January to September, where available from January to October, and forecasted for the remaining period from October/November to December 2022. Further information on the forecasting methodology is available in the ["Reporting approach"](#). All FC 2022 data has now been updated with actual data following the criteria set by GRI and the Greenhouse Gas Protocol Corporate Accounting. Deviations between FC and ACT data exceeding the five percent threshold level, trigger a restatement. The respective footnotes explain the main reason that triggered the deviation and hence the restatement. In general the following macroeconomic effects impacted the development of the ACT: side effects from the Covid-19 pandemic in China, the European energy crisis causing higher energy costs and relocations of GF sites. Those developments were insufficiently considered in the forecasting methodology.

Environmental performance indicators ¹	Unit	ACT 2022	2021	2020	2019	2018
Energy						
Gross energy consumption	1'000 GJ	3'390	3'632	3'032	3'565	6'823
Electricity	1'000 GJ	2'169	2'342	2'087	2'427	3'249
Natural gas, biogas, fuel oil	1'000 GJ	965	1'066	765	949	1'363
Coke	1'000 GJ	116	98	93	101	2'092
Fuel use (for internal transportation)	1'000 GJ	113 ²	104	53	65	97
Other energy sources	1'000 GJ	27 ³	22	34	22	22
Energy sold	1'000 GJ	-7	-8	-8	-1	-82
Net energy consumption	1'000 GJ	3'384	3'624	3'024	3'564	6'742
Renewable energy (incl. green electricity)	%	29 ⁴	24	17	15	9
Energy intensity (net energy consumption per sales)	1'000 GJ / CHF million	0.85	0.97	0.71	0.96	1.47
GHG emissions (in CO₂e)						
Total CO ₂ e emissions ("market based" approach)	1'000 tonnes CO ₂ e	1'803	1'975	1'592	1'873	630
Scope 1 (Direct emissions: fuel-related energy consumption) ²	1'000 tonnes CO ₂ e	81	84	68	77	312
Scope 2 market-based (Indirect emissions: electricity and district heating) ³	1'000 tonnes CO ₂ e	155	189	216	263	312
Scope 2 location-based (Indirect emissions: electricity and district heating) ⁴	1'000 tonnes CO ₂ e	269	293	297	333	411
Scope 3 absolute (Indirect emissions)	1'000 tonnes CO ₂ e	1'567	1'702	1'308	1'533	6
Category 1: Purchased goods and services	1'000 tonnes CO ₂ e	1'001	1'176	858	1'003	
Category 3: Fuel and energy-related services	1'000 tonnes CO ₂ e	59	55	47	55	
Category 4: Upstream transportation and distribution	1'000 tonnes CO ₂ e	46	43	36	43	
Category 5: Waste generated in operations	1'000 tonnes CO ₂ e	0	0	0	0	
Category 6: Business travel	1'000 tonnes CO ₂ e	4	2	2	7	6
Category 7: Employee commuting	1'000 tonnes CO ₂ e	19	17	15	17	
Category 9: Downstream transportation and distribution	1'000 tonnes CO ₂ e	35	32	28	32	
Category 10: Processing of sold products	1'000 tonnes CO ₂ e	17	16	13	16	

Category 11: Use of sold products	1'000 tonnes CO ₂ e	373	349	298	348	
Category 12: End of life treatment of sold products	1'000 tonnes CO ₂ e	13	12	10	12	
SBT 2026: scope 1 + 2 emission reduction (status at year-end)	1'000 tonnes CO ₂ e	236	273	284	330	
SBT 2030: scope 3 emission intensity index (t CO ₂ e emissions per t of processed material) (status at year-end) ⁶		3.9				
Air emissions						
Nitrogen oxides (NO _x)	1'000 tonnes	0.02	0.02	0.01	0.01	0.05
Sulfur oxides (SO _x)	1'000 tonnes	0.01	0.01	0.00	0.01	0.01
Volatile organic compounds (VOCs)	1'000 tonnes	0.05	0.05	0.05	0.05	0.06
Particulate matter	1'000 tonnes	0.002	0.004	0.002	0.001	0.005
Water and wastewater						
Total water consumption	1'000 m ³	2'093 ⁵	2'304	2'013	2'417	2'759
City water from public supply	1'000 m ³	646	696	648	702	697
Ground and rainwater	1'000 m ³	1'447 ⁵	1'608	1'365	1'715	2'062
Water consumption of GF sites located in water stressed areas	1'000 m ³	407	457			
Wastewater volume	1'000 m ³	1'847 ⁶	1'803	1'772	1'961	1'961
Wastewater to sewage systems	1'000 m ³	576	593	674	750	814
Wastewater returned to nature, unpolluted	1'000 m ³	1'271 ⁶	1'211	1'098	1'211	1'147
Sustainability Targets 2025: Water intensity index (status at year-end)		92	102	100		
Sustainability Targets 2025: Target line water intensity index ⁹ (water consumption per production volume ¹⁰)		92	96	100		
Waste and recycling						
Total waste	1'000 tonnes	85 ⁷	103	83	99	306
Non-hazardous waste	1'000 tonnes	74 ⁷	83	73	91	286
Normal waste, recycling	1'000 tonnes	59	58	53	67	245
Normal waste, landfill or incineration	1'000 tonnes	15 ⁷	25	20	24	41
Hazardous waste	1'000 tonnes	11	20	10	8	20
Hazardous waste, recycling	1'000 tonnes	6	15	5	3	16
Hazardous waste, storage or incineration	1'000 tonnes	6	5	5	5	4
Recycled waste as % of total waste	%	76	70	71	71	85
Sustainability Targets 2025: Unrecycled waste intensity index (status at year-end)		67	91	100		
Sustainability Targets 2025: Target line unrecycled waste intensity index ⁹ (non-recycled waste per production volume ¹⁰)		92	96	100		
Recycled input material						
GF Piping Systems recycled input material	1'000 tonnes	7	9			
Supplier sustainability assessment						
Key suppliers spend assessed with sustainability assessments	% of total purchase volume	64	34			
Monetary values						
Expenditure for environmental protection	CHF million	10	8	10	5	18

Energy costs	CHF million	102 ⁸	81	65	72	130
Water and wastewater costs	CHF million	3.1 ⁹	2.5	2.0	2.5	3.5
Waste disposal costs (-) and recycling credits (+)	CHF million	-2.2	-1.0	1	3	9

1 The environmental performance indicators include all GF production companies.

2 Restatement of forecasted internal fuel use data as the consumption of gasoline and diesel increased due to business trip recovery to pre-pandemic levels and an increase in scope of reporting compared to previous years.

3 Restatement of forecasted district heating from non-renewable sources at several sites in China. The rise in district heating was mainly due to an increase in the heat conversion efficiency of raw materials leading to elevation of heat energy releases.

4 Restatement of forecasted percentage of renewable energy due to a slight overestimation (4%) of green electricity which contributes mostly to the renewable energy figure.

5 Restatement of forecasted groundwater consumption data as more granular data are available and previous year data included neighboring companies' groundwater consumption.

6 Restatement of forecasted wastewater returned to nature, unpolluted, due to an increase in production volume.

7 Restatement of forecasted normal waste sent to landfill as five sites moved into new buildings or started renovation projects and this caused a higher amount of normal waste sent to landfill. This development was insufficiently considered in the forecasting methodology.

8 Restatement of forecasted energy costs as the energy crisis caused by the war in Ukraine was underestimated in the forecasted data.

9 Restatement of forecasted water and wastewater costs, as one site experienced an increase in wastewater going to the sewers which led to an increase in wastewater costs.