GRI-data

In most cases, the scope of the reported environmental indicators is limited to the relevant R&D and production sites in Beerse, Geel and Olen. The footprint of these sites for each of the reported indicators amounts to more than 95% of our total footprint in Belgium, however.

Water consumption (1)

Origin	2010 (m³)	2011 (m³)	2012 (m³)	2013 (m³)
Beerse 1				
Tap water	612.564	614.316	692.187	**562.852**
Rain water (2)	24.378	6.275	9.972	**18.718**
Ground water (3)	12.892	46.576	50.047	**50.632**
Sub-total	649.834	667.167	752.206	**632.202**
Geel				
Tap water	371.296	367.327	370.411	**346.490**
Ground water (3)	10.274	2.131	6.225	**3.371**
Sub-total	381.570	369.458	376.636	**349.861**
Olen				
Tap water	7.883	7.142	6.810	**6.692**
Mechelen				
Tap water	2.517	0	0	**0**
Total water consumption	**1.041.804**	**1.043.767**	**1.135.652**	**988.755**
HF2015 Objective: -10% (basis 2010)		**0,2%**	**9,0%**	**-5,1%**

(1) *Scope: J&J WWEHS MAARS sites (R&D en productie sites).*

(2) *Only the proportion of rainwater that is collected and reused as process water is indicated.*

(3) *Although soil remediation work is in progress in Beerse and Geel, the groundwater that is pumped up is not taken into account here, except for the proportion that is considered for use as process water. The Geel site has a license for extracting ground water, the volumes of which are specified.*

Water reuse (1)

Origin	2010 (m³)	2011 (m³)	2012 (m³)	2013 (m³)
Beerse 1				
Rain water	24.378	6.275	9.972	**18.718**
Ground water (soil remediation)	12.892	46.576	50.047	**50.632**
recycled WWTP effluent	71.371	20.056	13.894	**0**
recycled effluent for electrolyt production	3	437	260	**132**
Sub-total	**108.644**	**73.344**	**74.173**	**69.482**
Geel				
Process water (4)	0	2.000	25.000	**18.000**
Sub-total	**0**	**2.000**	**25.000**	**18.000**
TOTAL	**108.644**	**75.344**	**99.173**	**87.482**
% of the total water consumption	**10,4%**	**7,2%**	**8,7%**	**8,8%**

(4) *These volumes have been estimated to the best of our ability.*

Water emissions, flow and refuse load (1)

Site	Own water purification?	Destination of effluent	2010 (m³)	2011 (m³)	2012 (m³)	2013 (m³)
Beerse 1	Yes, 2-step purification	Surface water - Oude Dijkloop	957.106	956.066	1.031.065	**866.129**
Olen (5)	No	Industrial Wastewater Treatment Stelen	3.660	2.881	2.945	**3.306**
Geel	Yes, 3-step purification	Industrial Wastewater Treatment Stelen	507.289	477.566	500.128	**473.431**
TOTAL (6)			**1.468.055**	**1.436.513**	**1.534.138**	**1.342.866**

Beerse 1 (7)

Parameter	2010 (kg)	2011 (kg)	2012 (kg)	2013 (kg)
BOD (Biochemical Oxygen Demand) (8)	2.026	773	5.593	**1.195**
COD (Chemical Oxygen Demand) (9)	30.704	35.183	52.753	**23.377**
ZS (10)	12.756	15.928	21.254	**6.712**
Ntotal (11)	1.887	1.920	3.518	**2.988**
Ptotal (12)	923	1.224	1.486	**875**
Zn (13)	88	47	82	**119**
Cl (14)	237.455	249.954	217.967	**239.918**

(5) *The difference in the water consumption is due to the polluted industrial waste water that is selectively collected and treated in the water purification plant of the Geel site, as well as the water that evaporates in cooling towers.*

(6) *The difference to the total water consumption is caused by the ongoing soil remediation projects at the Beerse and Geel sites, the rainwater that enters the water treatment plant, the water in the products we produce and the water that evaporates in cooling towers.*

(7) *Given the fact that Beerse I is the only site where the waste water is discharged directly to surface waters (Oude Dijkloop), only the discharged loads of this site are indicated. The destination of the waste water from Olen and Geel is the waste water treatment station (RWZI) in Stelen.*

(8) *BZV: biological oxygen consumption.*

(9) *CZV: chemical oxygen consumption.*

(10) *ZS: volatile substances.*

(11) *Ntotal: total nitrogen.*

(12) *Ptotal: total phosphorous.*

(13) *Zn: zinc.*

(14) *Cl: chlorides.*

Energy consumption (15)

	Unit	2010	2011	2012	2013
Beerse 1					
Natural gas	MWh	161.617	145.662	146.557	**143.835**
	GJ	525.385	473.518	476.427	**467.579**
Light fuel oil (16)	liter	52.700	75.000	58.729	**604.156**
	GJ	1.913	2.722	2.131	**21.712**
Electricity	MWh	84.859	88.388	88.633	**85.354**
	GJ	305.492	318.197	319.079	**307.274**
Nitrogen	liter	2.735.384	2.869.986	2.753.036	**2.715.328**
Totaal warmte- of stoomproductie	**GJ (ovw)**			**478.560**	**454.000**
Totaal energieverbruik				**954.987**	**796.565**
Directe CO_2-emissie (17) (18)	**Tons**	**29.467**	**26.631**	**26.750**	**27.840**
Indirecte CO_2-emissie (18) (19) (20)	**Tons**	**18.490**	**19.259**	**19.313**	**18.598**
Totaal energieverbruik	**GJ**	**832.790**	**794.437**	**797.638**	**796.565**
Total CO_2 emission (18) (21)	**Tons**	**48**	**46**	**46**	**46.438**
Geel					
Natural gas	MWh	64.921	54.997	56.562	**54.102**
	GJ	211.045	178.784	183.872	**175.875**
Light fuel oil	liter	15.900	21.200	30.500	**42.908**
	GJ	577	769	1.107	**1.542**
Electricity	MWh	40.755	40.978	41.192	**40.901**
	GJ	146.718	147.521	148.291	**147.243**
Nitrogen	Nm^3	6.310.533	6.589.499	6.970.894	**7.047.099**
Direct CO_2 emission (17) (18)	**Tons**	**11.822**	**10.036**	**10.264**	**9.981**
Indirecte CO_2-emissie (18) (19) (20)	**Tons**	**8.880**	**8.929**	**8.975**	**8.912**
Totaal energieverbruik	**GJ**	**358.340**	**327.074**	**333.270**	**324.659**
Total CO_2 emission (18) (21)	**Tons**	**21**	**19**	**19**	**18.893**
Olen					
Natural gas	MWh	2.718	2.343	2.256	**2.319**
	GJ	8.836	7.617	7.334	**7.539**
Electricity	MWh	2.733	2.701	2.561	**2.393**
	GJ	9.839	9.724	9.220	**8.615**
Direct CO_2 emission (17) (18)	**Tons**	**523**	**451**	**434**	**423**
Indirecte CO_2-emissie (18) (19) (20)	**Tons**	**596**	**589**	**558**	**521**
Totaal energieverbruik	**GJ**	**18.674**	**17.340**	**16.553**	**16.154**
Total CO_2 emission (18) (21)	**Tons**	**1**	**1**	**992**	**944**
Beerse 2					
Natural gas	MWh	1.142	923	842	**1.006**

	GJ	3.712	3.000	2.737	**3.270**
Electricity	MWh	5.838	5.684	5.441	**5.327**
	GJ	21.017	20.462	19.588	**19.177**
Direct CO_2 emission (17) (18)	**Tons**	**220**	**178**	**162**	**183**
Indirecte CO_2-emissie (18) (19) (20)	**Tons**	**1.272**	**1.239**	**1.186**	**1.161**
Totaal energieverbruik	**GJ**	**24.729**	**23.463**	**22.325**	**22.448**
Total CO_2 emission (18) (21)	**Tons**	**1**	**1**	**1**	**1.344**
Mechelen (22)					
Natural gas	MWh	2.465	0	0	**0**
	GJ	8.013	0	0	**0**
Electricity	MWh	4.476	0	0	**0**
	GJ	16.114	0	0	**0**
Direct CO_2 emission (17) (18)	**Tons**	**449**	**0**	**0**	**0**
Indirecte CO_2-emissie (18) (19) (20)	**Tons**	**975**	**0**	**0**	**0**
Totaal energieverbruik	**GJ**	**24.127**	**0**	**0**	**0**
Total CO_2 emission (18) (21)	**Tons**	**1.706**	**0**	**0**	**0**
TOTAL					
Totaal energieverbruik	**GJ**	**1.258.660**	**1.162.314**	**1.169.786**	**1.159.826**
Direct CO_2 emission (17) (18)	**Tons**	**42**	**37.296**	**37.611**	**38.427**
Indirecte CO_2-emissie (18) (19) (20)	**Tons**	**30.213**	**30.015**	**30.032**	**29.192**
Total CO_2 emission (18) (21)	**Tons**	**72.695**	**67.311**	**67.642**	**67.619**
HF2015 Objective 2020 (-20% basis 2010)	**%**		**-7,4%**	**-7,0%**	**0,5%**

(15) *Scope: Beerse 1, Beerse 2, Geel, Olen and Mechelen.*

(16) *In 2013, the stock of light heating oil was used.*

(17) *Direct CO2 emission, related to the consumption of natural gas and light fuel oil.*

(18) *CO2: carbon dioxide.*

(19) *Indirect CO2 emission, related to the electricity consumption.*

(20) *The CO_2 emission for all years has changed because of adapted emission factors, according to the latest climate assessment report of IPCC 'Climate Change 2013, The Physical Science Basis'*

(21) *Total CO2 emission, direct and indirect.*

(22) *The activities in Mechelen were moved to Beerse; the figures represent an average of the period 2003-2009.*

Air emissions (1)

Type	2010 (kg)	2011 (kg)	2012 (kg)	2013 (kg)
Beerse 1/Olen				
VOS (23)	9.622	6.733	5.629	**3.083**
NOx (24)	26.075	16.127	13.528	**15.505**
Geel				
VOS (23) (25)	4.354	5.930	17.026	**21.249**
NOx (24)	9.770	6.589	6.729	**7.357**
Total				
VOS (23) (25)	13.976	12.663	22.655	**24.332**
NOx (24) (26)	35.845	22.716	20.257	**22.862**

(23) *VOS: volatile organic substances (conducted emissions).*

(24) *NOx: nitrogen oxides (conducted emissions).*

(25) *Sedert 2012, zijn we in staat om de geleide emissie van de alifatische alcoholen kwantitatief te bepalen. Dit verklaart de stijging van de hoeveelheid VOS.*

(26) *The Beerse and Geel sites take part in the 'NOx Environmental Agreement' of essenscia vlaanderen (the Flemish Federation of the Chemical Industry and Life Sciences). We invested in both energy efficiency and in the installation of 'low-NOx' burners on our boilers. This explains the drop in the conducted NOx emissions.*

Cooling gas emissions (1)

Site	Unit	2010	2011	2012	2013
Beerse 1/Olen					
Total HCFC emission (27) (28)	kg	2,41	2,91	5,18	**29,6**
Total HFC emission (27) (29)	kg	183,02	1.027,20	342,57	**97,85**
Total ODP (30)	R11-eq	0,12	0,15	0,26	**1,18**
Total GWP (31)	kg CO_2 eq (18)	287.826	1.526.655	598.159,00	**249.544,8**
Geel					
Total HCFC emission (27) (28)	kg	1,23	0,00	10,33	**10,4**
Total HFC emission (27) (29)	kg	101,70	0,00	95,64	**200,47**
Total ODP (30)	R11-eq	0,06	0,00	0,52	**0,42**
Total GWP (31)	kg CO_2 eq (18)	216.508	0,00	157.057,00	**374.947,34**
Total					
Total HCFC emission (27) (28)	kg	3,64	2,91	15,51	**40,00**
Total HFC emission (27) (29)	kg	284,72	1.027,20	438,21	**298,32**
Total ODP (30)	R11-eq	0,18	0,15	0,78	**1,60**
Total GWP (31)	kg CO_2 eq (18)	504.334	1.526.655	755.217,00	**624.492,14**

(27) *Cooling gas emissions are calculated on the basis of the augmented quantities during the maintenance of the installations.*

(28) *HCFC: chlorodifluoromethane.*

(29) *HFC: hydrofluorocarbons.*

(30) *ODP: Ozone Depletion Potential, expressed in CFC-11 equivalents.*

(31) *GWP: Global Warming Potential, expressed in kg CO2 equivalents.*

Waste (1)

Type	2010 (kg)	2011 (kg)	2012 (kg)	2013 (kg)
Beerse/Olen				
Total Hazardous Waste (32)	1.981.813	2.320.944	1.825.331	**2.190.327**
Total Non-Hazardous Waste	3.275.770	3.852.590	5.428.814	**7.076.010**
Total Waste	5.257.583	6.173.534	7.254.145	**9.266.337**
Of which not reused or recycled (33)	2.922.843	3.312.614	4.585.242	**4.511.864**
Healthy Future 2015 Objective (-10%, basis 2010)		13,30%	56,90%	**54,37%**
Geel				
Total Hazardous Waste	13.980.200	15.453.000	15.106.000	**16.396.000**
Total Non-Hazardous Waste	3.327.500	3.008.000	3.177.000	**3.416.000**
Total Waste	17.307.700	18.461.000	18.283.000	**19.812.000**
Of which not reused or recycled (33)	11.387.800	11.183.000	10.424.000	**11.686.000**
Healthy Future 2015 Objective (-10%, basis 2010)		-1,80%	-8,50%	**2,62%**

Mechelen				
Total Hazardous Waste [32]	19.496	-	-	-
Total Non-Hazardous Waste	12.300	-	-	-
Total Waste	31.796	-	-	-
Of which not reused or recycled [33]	25.306	-	-	-
Healthy Future 2015 Objective (-10%, basis 2010)		-100,00%	-100,00%	**-100,00%**
Total				
Total Hazardous Waste [32]	15.981.509	17.773.944	16.931.331	**18.586.327**
Total Non-Hazardous Waste	6.615.570	6.860.590	8.605.814	**10.492.010**
Total Waste	22.597.079	24.634.534	25.537.145	**29.078.337**
Of which not reused or recycled [33]	14.335.949	14.495.614	15.009.242	**16.197.864**
Healthy Future 2015 Objective (-10%, basis 2010)		1,10%	4,70%	**12,99%**

[32] *Including biological and radioactive waste.*

[33] *The sum of the waste with destination landfill, physicochemical treatment and incineration with energy recovery.*

Cross-border transport of waste [1] [34]

1013/2006 criteria	Destination	2010 (kg)	2011 (kg)	2012 (kg)	2013 (kg)
Green Waste List [35]	Great Britain	1.737	1.737	1.546	**1.089**
Green Waste List [35]	The Netherlands	0	1.610	0	**0**
Orange Waste List [35]	France	0	0	155.480	**269.170**
Orange Waste List [36]	Great Britain	310.480	695.940	744.220	**812.960**
Orange Waste List [36]	Germany	43.000	0	75.240	**132.940**
Orange Waste List [36]	The Netherlands	0	20.000	0	**15.490**
Total Green Waste List [35]		**1.737**	**3.347**	**1.546**	**1.089**
% of the total non-hazardous waste		0,03%	0,05%	0,02%	**0,01%**
Total Orange Waste List [36]		**353.480**	**715.940**	**974.940**	**1.230.560**
% of the total hazardous waste		2,21%	4,03%	5,76%	**6,62%**
Total cross-boundary waste transport		**355.217**	**719.287**	**976.486**	**1.231.649**
% of the total waste		1,57%	2,92%	3,82%	**4,24%**

[34] *Cross-border transport of waste and % of the total waste, by Member State (Commission Regulation (EU) 1013/2006).*

[35] *List of waste products that should be accompanied by specific information as referred to in Article 18 of the Regulation, see Annex III of the Regulation.*

[36] *List of waste products to which the procedure of prior written notification and permission applies, see Annex IV of the Regulation.*

Monetary value of significant fines [1]

	2010	2011	2012	2013
Number of significant environment-related fines [37]	0	0	0	**0**
Monetary value of significant environment-related fines [37]	0	0	0	**0**
Number of non-monetary sanctions for non-compliance with environmental legislation	0	0	0	**0**

[37] *Significant penalties: fines > 50,000 USD cf. J&J Worldwide Environmental, Health and Safety Standards.*