

BIO-COL references for the treatment of sewer networks

The problems encountered in these different networks are :

- the significant and stagnant presence of sludge and grease in the sewer system
- odour nuisances in and around the sewer system
- excessive production of H₂S in the sewer system
- pollution of downstream rivers or streams
- downstream of WWTP treatment plant

Client	Period of treatment	Population Equivalent treated (p.e.)	Issues to solve	Results
Colomar Unidad Ibiza – Spain	2019 – 2018 Ongoing	Treatment of the Albatros Apartments sewer system in Santa Eulalia	Silting of the network, sewer pumps, odours	Treatment in process
City of Lochristi (BEL)	2019 – 2017 Ongoing	Treatment of a 300 p.e. sewer system discharging into a stream in Hijfte	Silting, odours	Decrease in mud heights and odours
Belgian Army	2019 – 2017 Ongoing	Treatment of the sewer system of Eisenborn's military estate	Silting, odours	Clean network after one year of treatment, odours disappeared, better efficiency of WWTP
City of Namur (BEL)	2019 – 2015 Ongoing	<ul style="list-style-type: none"> a. Treatment of part of the Jamber sewer network corresponding to 8,400 p.e. (since 2009) b. Treatment of the rest of the sewer network of Jambes corresponding to 15000 p.e since December 2011 c. Treatment around the Theatre Square (1320 p.e) in the centre since 2013 d. Sewer network treatment on rue St-Nicolas (3000 EH) since 2000 e. Treatment of the historic centre of Namur (7000 p.e.) since 2016 f. Treatment of the sewer network of Loyers (1400EH) since August 2017 g. Treatment of Arquet Creek and Champion and Vedrin Sewer System (750 p.e) since August 2017 h. Treatment of Ruisseau le Frizet and the Daussoulx and Vedrin sewer system (1700 p.e.) since August 2017 	Silting, odours	<ul style="list-style-type: none"> a. Clean sewer system and 75% decrease in silt height in the collector after 8 years of treatment b. Clean sewer system and 70% reduction in silt height in the collector after 6 years of treatment c. 60% reduction in the height of mud and grease in 4 years. d. Maintaining a low level of silt height in the collector e. Decrease in vases and fats. No more odours after 6 months of treatment f. Decrease in mud heights and odours g. Decrease in mud heights and odours h. Decrease in mud heights and odours
City of Chaudfontaine (BEL)	2019 – 2014 Ongoing	<ul style="list-style-type: none"> a. Treatment of La Paillette Creek and 466 p.e. sewer system since 2018 b. Treatment of Gobry Creek and 603 p.e. sewer system since 2014 c. Treatment of the Fond des Cris stream 600m² and the 70 p.e. sewer network since 2017 d. Treatment of creek « Les belles promenades » and the 60 p.e. sewer system since 2016 e. Treatment of the stream on the Huts and the 100 p.e. sewer network since 2016 f. Treatment of creek « Les 7 Collines » and 220 p.e. sewer system since 2008 	Silting, odours	<ul style="list-style-type: none"> a. Clean networks and clean waterways after 1 year of treatment b. Clean sewer systems, no more odours. Decrease of 46% in silt height in 15 months of Gobry Creek, total water clarity. c. Clean network and streams, odours gone d. Clean network and streams, odours gone e. Clean network and streams, odours gone f. Sewer network kept clean and odours disappeared
City of Rotterdam (NL)	2019 – 2014 Ongoing	<ul style="list-style-type: none"> a. Treatment of the drainage network of a part of the Tussendijken district corresponding to 12500EH. b. Treatment of the sewerage network in the city centre corresponding to 10000 p.e. c. Treatment of Tiendplein corresponding to 1250EH. 	Considerable silting of grease and organic mud and consequent odour production	<ul style="list-style-type: none"> a. 71% reduction in the height of silt and grease at two lifting pumps in 1 year. No more smelly odours. 17% reduction in the height of mud and grease in the starting plates b. 74% decrease in the lift pump 57% decrease in the starting plates No more smelly odours c. 75% reduction in the height of vases and fats in 15 months No more odours
City of Geer (BEL)	2019 – 2004 Ongoing	Treatment of the sewer network of various municipal entities discharging into the river "Geer" rcorresponding to 3.000 p.e.	Silting, odours, contamination of the river	Decrease of 90% of the silt height. Total disappearance of odours. Improvement of the water quality of the river
City of Hannut (BEL)	2019 - 2015 Ongoing	Treatment of 3 municipalities whose sewers discharge into the Geer river (1626 p.e.)	Silting, odours	Clean network after one year of treatment

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City of Crisnée (BEL)	2019 - 2010 Ongoing	Sewer network treatment corresponding to 3100 p.e.	Silting, odours	Clean network after one year and reduction of pollution entering the river from the second year. Clean network since obtention of results.
City of Wareme (BEL)	2019 - 2010 Ongoing	Treatment of two municipal sewers (850 p.e.)	Silting, odours	Sewer network kept perfectly clean and elimination of odours. Eliminated discharges of suspended solids since mid-2011.
Inbw – Wavre (BEL)	2018 – 2017	Treatment of the collector preceding the WWTP of the Petite Bilande in Wavre	COD too high and negative redox at the WWTP entrance	Positive redox at WWTP entry and transformation of solid COD into liquid COD
City of Plombières (BEL)	2018 – 2014	Treatment of the Moresnet-Chapelle drainage system discharging into the river "The Rodbuschkesbach" corresponding to 900 p.e.	Silting, odours	Clean network and odours eliminated since beginning of 2008. No discharge into rivers of suspended solids since mid-2008.
City of Oreye (BEL)	2017 – 2016	Treatment of the sewer network discharging into the Geer (1265 p.e.)	Silting, odours	Clean sewer system and odours gone
City of Nijlen (BEL)	2017 – 2016	Treatment of a sewer system discharging into a creek arm (125 p.e.)	Silting, odours	Clean sewer system after one year. Odours disappeared.
City of Marche en Famenne (BEL)	2017 – 2013	Treatment of 900 p.e. sewage discharge into a stream	Odours and silting of the river bed linked to the direct rejection of sewage water	Disappearance of odours everywhere after six to eight months of treatment.
City of Walhain (BEL)	2017 – 2011	Treatment of sewer network of 1400 p.e and river Hain and its tributaries (4030m ²)	Silting, odours	Total clean sewer system after one year of treatment. Between 25 and 42% decrease in silt height in 18 months in the stream. Only inorganic materials remain in the watercourses.
City of Kortenberg (BEL)	2017 - 2014	Treatment and sanitation of sewer systems discharging directly into waterways streams corresponding to 3000 p.e.	Silting, odours	Clean and odourless sewer system. Discharges into streams free of suspended solids since 2005. More than 50% reduction in sludge height at stream level.
City of Bornem (BEL)	2017 - 2014	Treatment of the drainage network of a district corresponding to 450 p.e.	Silting, odours	Clean sewer system and liquefying grease at the lifting station. Decrease in the height of silt in the collector.
City of Kampenhout (BEL)	2016 – 2014	a. Treatment of Molenbeekstraat stream and sewerage system by 50 p.e. b. Treatment of Bukensstraat Creek and sewer system by 105 p.e.	Silting, odours	a. clean sewer system and 30% reduction in silt heights in the stream b. clean sewer system and 35% reduction in silt heights in the stream
CODI – Dinan (Bretagne – FR)	2016 – 2013	Treatment of the inlet lagoon of the Calorguen WWTP and the 500EH sewerage system	Odour issues and formation of grease deposits in the lagoon linked to the direct disposal of sewage	Almost clean sewer system after 12 months of treatment and liquefaction of fats at the entrance of the lagoon. 44% decrease in mud height at lagoon level and almost no odours
City of Denderleeuw (BEL)	2016 – 2008	Treatment of several sewer networks corresponding to a total of 370EH	Silting, odours.	Maintenance of the sewer network perfectly clean and elimination of odours.
City of Lokeren (BEL)	2016 - 2014	Treatment of Bokslaarstraat Creek and 50 p.e. sewer system	Silting, odours	Clean sewer system and 28% reduction of silt height in the creek

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City of Breda (NL)	2015 - 2011	Treatment of the sewer network in the city centre corresponding to 1000 equivalent inhabitants	Silting, odours	Total disappearance of silt and nauseous odours after six months of treatment
SAUR (Bretagne – FR)	2014 – 2012	a. Treatment of the sewerage network of the island of Houat with 400 p.e. b. Treatment of the sewer system of part of Quiberon (710 p.e.) and the sewer pump basin	Silting, odours	a. Improved water clarity, clean sewer system and grease liquefaction. Strongly reduced odours. b. Clean sewerage system and removal of odours from the sewer pump
AIVE – City of Durbuy (BEL)	2014 – 2011	Sewer system treatment (2000 p.e.)	Grease deposits and odours. Underdimensioned WWTP	Clean sewer network after one year and liquefaction of grease in the collector. Improvement of the station's yields (total nitrification, standards continuously met)
City of Maassluis (NL)	2013 – 2011	Treatment of a sewage collector in the centre corresponding to 500 p.e.	Considerable silting of grease and organic mud and consequent odour problem	Improved water clarity, reduced siltation and liquefaction of fats
City of Huy (BEL)	2013 – 2010	Treatment of the Ben-Village sewer system discharging into the "Le Ben" stream corresponding to 150 p.e.	Silting, odours	84% reduction in silt height. Total disappearance of odours after four months of treatment
Metropolitana Milanese (Milan - IT)	2012 – 2010	Treatment of various sewerage networks in Milan (9500 p.e)	Considerable silting of grease and organic mud and consequent odour problem	70% reduction in sludge heights in 12 months. Odours gone. Client calculated a reduction of 30% in maintenance costs
City of Dordrecht (NL)	2012 – 2011	Treatment of the drainage network of a district corresponding to 1000 p.e.	Considerable silting of grease and organic mud and consequent odour problem	Improved water clarity, clean sewerage and grease liquefaction
City of Bergen op Zoom (NL)	2012 – 2011	Treatment of the sewer network of a district corresponding to 940 p.e.	Considerable silting of grease and organic mud and consequent odour problem	Improved water clarity, reduced siltation and liquefaction of fats Decrease in the frequency of cleaning the sewage lifting station
INFRA – City of Hasselt (BEL)	2012 - 2007	Treatment of the Tuilt sewerage system discharging into the "Kastanjelaan" stream corresponding to 100 p.e.	Considerable silting of organic matter and odours	Decrease in sludge height in the sewer system, 40% reduction in silt height in the stream, odours almost disappeared.
INASEP – City of Florennes (BEL)	2010 – 2009	Treatment of the sewerage system and a collector (2.700 p.e.)	Silting, odours	Clean sewer system after 9 months of treatment. 64% reduction in the height of the silt in the collector. Total disappearance of odours after six months of treatment.
City of De Haan (BEL)	2008 – 2005	Treatment of the Vlissegem canal receiving wastewater discharges corresponding to 500 p.e.	Silting, odours	45% reduction in the height of the organic silt in the canal and disappearance of odours. Clean and maintained sewer system since 2006.
City of Lasne (BEL)	1998 – 2005	Sewer treatment with a counter-slope problem	Considerable silting of organic matter and odours	Odourless sewers and good wastewater flow after 1 year of treatment. Maintaining the good flow then.