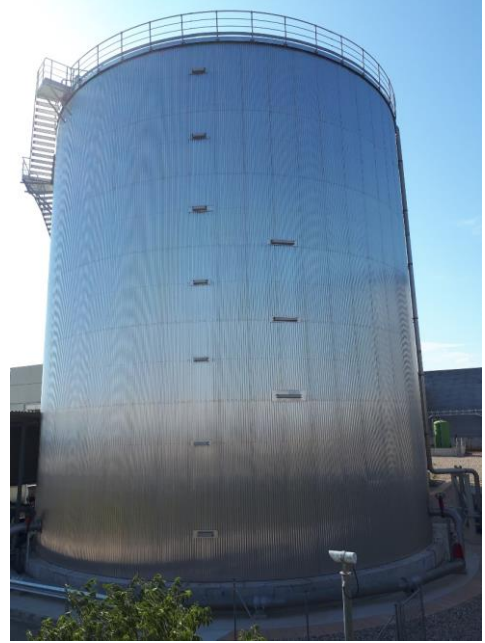


# References Biogas Plants



# References

## Biogas Plants / Digestion Plants

Location	Plant Input	Input Biogas Plant / Capacity	Technology	Start-up
Daya, Israel	Fine screened fraction of MSW	153 000 t/a	Dry digestion, LARAN® plug flow digester	2025
Geneva, Switzerland	Kitchen / green waste	27 000 t/a	Dry digestion, LARAN® plug flow digester	2025
Shafdan, Israel	Fine screened fraction of MSW	183 000 t/a	Dry digestion, LARAN® plug flow digester	2025
Pierrefonds, France (La Réunion)	Fine screened fraction of MSW/biowaste	30 000 t/a	Dry digestion, LARAN® plug flow digester	2024
Wuhan Qianzishan, China	Kitchen household waste	164 250 t/a	Dry digestion, LARAN® plug flow digester	2024
Peccioli, Italy	Biowaste	89 700 t/a	Dry digestion, LARAN® plug flow digester	2024
Trappenfelde, Germany	Biowaste	33 000 t/a	Dry digestion, LARAN® plug flow digester	2024
Maniago, Italy	Biowaste/green waste	100 000 t/a	Dry digestion, LARAN® plug flow digester	2023
Mianyang, China	Kitchen household waste	36 500 t/a	Wet digestion, LARAN® loop digester	2023
Asdonkshof, Germany	Biowaste	23 100 t/a	Dry digestion, LARAN® plug flow digester	2023
Qingdao, China	Household kitchen waste	110 000 t/a	Dry digestion, LARAN® plug flow digester	2023
Mallorca, Spain	Biowaste, food waste	51 400 t/a	Extension by an additional line	2023
		25 000 t/a	Wet digestion, LARAN® loop digester	2019
Wuhan Wuchang, China	Foodwaste	110 000 t/a	Wet digestion, LARAN® loop digester	2023
Avezzano, Italy	Biowaste	45 000 t/a	Dry digestion, LARAN® plug flow digester	2023
Alleriot, France	Commercial and agricultural waste products	25 000 t/a	Dry digestion, LARAN® plug flow digester	2022
Orli Staw, Poland	Biowaste	15 000 t/a	Dry digestion, LARAN® plug flow digester	2022
Cavaglia, Italy	Biowaste	50 000 t/a	Dry digestion, LARAN® plug flow digester	2022
Lanzhou, China	Fruit and vegetable waste	132 000 t/a	Wet digestion, LARAN® loop digester	2022
Cangnan, China	Food and kitchen waste	37 000 t/a	Wet digestion, LARAN® loop digester	2021
St. Antoine de Breuilh, France	Commercial and agricultural waste products	15 000 t/a	Dry digestion, LARAN® plug flow digester	2021

Location	Plant Input	Input Biogas Plant / Capacity	Technology	Start-up
Izmir, Türkiye	Fine screened fraction of MSW	180 000 t/a	Dry digestion, LARAN® plug flow digester	2021
Hefei, China	Household kitchen waste	80 000 t/a	Dry digestion, LARAN® plug flow digester	2020
Fuzhou, China	Kitchen waste	146 000 t/a	Dry digestion, LARAN® plug flow digester	2020
Pierre-Morains, France	By-products from agriculture and food production	36 000 t/a	Dry digestion, LARAN® plug flow digester	2020
Sakarya, Türkiye	Fine screened fraction of MSW	180 000 t/a	Dry digestion, LARAN® plug flow digester	2020
Hangzhou, China	Food and kitchen waste	144 000 t/a	Extension Phase II	2020
		72 000 t/a	Wet digestion, LARAN® loop digester	2017
Anzio, Italy	Biowaste	40 000 t/a	Dry digestion, LARAN® plug flow digester	2020
Yangzhou, China	Kitchen waste, gutter oil	72 000 t/a	Extension Phase II	2020
		36 000 t/a	Wet digestion, LARAN® loop digester	2016
Westheim, Germany	Biowaste and green waste	45 000 t/a	Dry digestion, LARAN® plug flow digester	2019
Carboli, Italy	Biowaste	20 000 t/a	Dry digestion, LARAN® plug flow digester	2019
Arcis-sur-Aube, France	By-products from agriculture and food production	42 500 t/a	Dry digestion, LARAN® plug flow digester	2019
Liège, Belgium	Biowaste	40 000 t/a 0,9 MW <sub>el.</sub>	Dry digestion, LARAN® plug flow digester	2019
Middenmeer, Netherlands	Biowaste	110 000 t/a	Extension by fourth digester	2018
		80 000 t/a	Dry digestion, LARAN® plug flow digester	2011
Loiret, France	By-products from agriculture and food production	25 000 t/a	Dry digestion, LARAN® plug flow digester	2018
Carpi, Italy	Biowaste	40 000 t/a	Dry digestion, LARAN® plug flow digester	2018
Pellefigue, France	Manure, maize silage	13 000 t/a	Dry digestion, LARAN® plug flow digester	2017
Jinzhong, China	Kitchen waste	22 000 t/a	Wet digestion, LARAN® loop digester	2017
Kielce, Poland	Fine screened fraction	32 000 t/a 1,7 MW <sub>Biogas</sub>	Dry digestion, LARAN® plug flow digester	2016
Tuscania, Italy	Biowaste	22 000 t/a	Dry digestion, LARAN® plug flow digester	2015
Helsinki, Finland	Biowaste	44 000 t/a 6 MW <sub>Biogas</sub>	Dry digestion, LARAN® plug flow digester	2015

Location	Plant Input	Input Biogas Plant / Capacity	Technology	Start-up
Ljubljana, Slovenia	Fine screened fraction of MSW, biowaste	70 000 t/a 2,4 MW <sub>el.</sub>	Dry digestion, LARAN® plug flow digester	2015
Stalowa Wola, Poland	Fine screened fraction of MSW 75 000 t/a	15 000 t/a 400 kW <sub>el.</sub>	Dry digestion, LARAN® plug flow digester	2015
Lemgo, Germany	Biowaste, green waste	38 000 t/a	Retrofitting, new agitators Dry digestion, LARAN® plug flow digester	2014 2000
Quarzbichl, Germany	Biowaste	25 000 t/a 750 kW <sub>el.</sub>	Dry digestion, LARAN® plug flow digester	2014
Alphen, Netherlands	Biowaste	50 000 t/a 3,2 MW <sub>Biogas</sub>	Dry digestion, LARAN® plug flow digester	2014
Tychy, Poland	Fine screened fraction of MSW	18 000 t/a 600 kW <sub>el.</sub>	Dry digestion, LARAN® plug flow digester	2014
Beijing, China	Organic food waste, market waste	73 000 t/a	Wet digestion, LARAN® loop digester	2013
Loop, Germany	Energy crops (corn, beet, silage), dung, manure	30 000 t/a 5,8 MW <sub>Biogas</sub>	Dry digestion, LARAN® plug flow digester	2013
Glentorf, Germany	Energy crops (corn, beet, silage, sorghum, grass)	24 000 t/a 3,7 MW <sub>Biogas</sub>	Dry digestion, LARAN® plug flow digester	2013
Zell am See, Austria	Biowaste, food waste, sewage sludge	18 000 t/a 1,5 MW <sub>Biogas</sub>	Wet digestion, LARAN® loop digester	2013
Berlin, Germany	Biowaste	60 000 t/a 5,5 MW <sub>Biogas</sub> 1 000 Nm <sup>3</sup> /h	Dry digestion, LARAN® plug flow digester Amine Wash (natural gas quality)	2013
Xiamen, China	Fine screened fraction of MSW	50 000 t/a 1,4 MW <sub>el.</sub>	Dry digestion, LARAN® plug flow digester	2013
Freudenstadt, Germany	Biowaste	18 000 t/a 600 kW <sub>el.</sub>	Dry digestion, LARAN® plug flow digester	2012
Peine, Germany	Energy crops	30 000 t/a 4 MW <sub>Biogas</sub>	Dry digestion, LARAN® plug flow digester	2012
Gießen, Germany	Energy crops (corn, beet, silage, grass)	24 000 t/a 3,7 MW <sub>Biogas</sub>	Dry digestion, LARAN® plug flow digester	2012
Brest, Belarus	Fine screened fraction of MSW	45 000 t/a 1,5 MW <sub>el.</sub>	Dry digestion, LARAN® plug flow digester	2011

Location	Plant Input	Input Biogas Plant / Capacity	Technology	Start-up
Mondercange, Luxemburg	Biowaste, energy crops	30 000 t/a 1,9 MW <sub>Biogas</sub>	Dry digestion, LARAN® plug flow digester	2011
		330 Nm <sup>3</sup> /h	Amine Wash (natural gas quality)	
Dargun, Germany	Energy crops	75 000 t/a 12 MW <sub>Biogas</sub>	Dry digestion, LARAN® plug flow digester	2010
Brest, Belarus	Sewage sludge	200 000 t/a 800 KW <sub>el.</sub>	Wet digestion, LARAN® loop digester	2010
Iasi, Romania	Sewage sludge	190 000 t/a 650 KW <sub>el.</sub>	Wet digestion, LARAN® loop digester	2010
Lille Marquette, France	Sewage sludge	100 Nm <sup>3</sup> /h	Pressurized water scrubbing (fuel / CNG)	2009
Kirchwalsede, Germany	Energy crops, dung	25 000 t/a 1,4 MW <sub>el.</sub>	Dry Digestion, LARAN® plug flow digester	2009
Jessen, Germany	Maize silage, grass silage, crops silage	approx. 60 000 t/a 4 MW <sub>el.</sub>	Dry digestion, LARAN® plug flow digester	1 <sup>st</sup> step 2008 2 <sup>nd</sup> step 2009
Zeewolde, Netherlands	Manure, maize silage and waste products of food industry	13 000 t/a 370 KW <sub>el.</sub>	Wet digestion, LARAN® loop digester	2008
Hoheneggelsen, Germany	Maize silage, crops silage	16 000 t/a 700 KW <sub>el.</sub>	Dry digestion, LARAN® plug flow digester	2008
Oosterbierum, Netherlands	Slop from potato processing	36 000 t/a 1,4 MW <sub>el.</sub>	Wet digestion, LARAN® loop digester	2008
Kaltenweide, Germany	Energy crops	16 000 t/a 750 KW <sub>el.</sub>	Dry digestion, LARAN® plug flow digester	2008
Tirns, Netherlands	Manure, maize silage and waste products of food industry	20 000 t/a 720 KW <sub>el.</sub>	Wet digestion, LARAN® loop digester	2008
Lechfeld, Germany	Maize silage, grass silage, crops silage, crops	35 000 t/a 5 MW <sub>Biogas</sub>	Dry digestion, LARAN® plug flow digester	2008
		1 000 Nm <sup>3</sup> /h	Pressure swing adsorption (natural gas quality) <sup>1</sup>	
Hoppstädten-Weiersbach, Germany	Biowaste, food waste	23 000 t/a	Dry digestion, LARAN® plug flow digester	2002 Expansion 2008
Torenhoeve, Netherlands	Manure, energy crops	22 000 t/a 500 KW <sub>Biogas</sub>	Wet digestion, LARAN® loop digester	2007
Malchin, Germany	Maize silage, rye, grass silage	56 000 t/a 3,5 MW <sub>el.</sub>	Dry digestion, LARAN® plug flow digester	1 <sup>st</sup> step 2007 2 <sup>nd</sup> step 2008

Location	Plant Input	Input Biogas Plant / Capacity	Technology	Start-up
Lille, France	Biowaste, food waste, market waste, yard waste 108 600 t/a	62 000 t/a 5,5 MW <sub>Biogas</sub>	Dry digestion, LARAN® plug flow digester	2007
		1 200 Nm <sup>3</sup> /h	Pressurized water scrubbing (fuel / CNG)	
Lelystad, Netherlands	Manure, unpacked food waste, maize silage	16 000 t/a 280 kW <sub>el.</sub>	Wet digestion, LARAN® loop digester	2006
Kleinbautzen, Germany	Manure, rye	55 000 t/a 500 kW <sub>el.</sub> <sup>1</sup>	Wet digestion, LARAN® loop digester Gas treatment has not been realised by STRABAG Umwelttechnik GmbH	2006
Zittau, Germany	Maize silage	30 000 t/a 1,5 MW <sub>el.</sub>	Dry digestion, LARAN® plug flow digester	2006
Western Isles, Scotland	MSW, biowaste, fish waste	8 500 t/a	Dry digestion, LARAN® plug flow digester	2006
Salto del Negro, Spain	Fine screened fraction of MSW	75 000 t/a	Wet digestion, LARAN® loop digester	2005
Hita, Japan	Manure, fine fraction of MSW, sewage sludge	25 000 t/a	Wet digestion, LARAN® loop digester	2005
Burgos, Spain	Fine screened fraction of MSW 75 000 t/a	40 000 t/a	Wet digestion, LARAN® loop digester	2005
Camposampiero, (Padua), Italy	Biowaste, sewage sludge, manure	49 000 t/a	Wet digestion, LARAN® loop digester	2005
Lisbon, Portugal	Biowaste, food waste, market waste, organic waste	40 000 t/a	Wet digestion, LARAN® loop digester	2005
Stavenhagen, Germany	Sewage sludge	40 000 t/a	Wet digestion, LARAN® loop digester	2003
Madrid, Spain	Fine screened fraction of MSW 140 000 t/a	73 000 t/a	Wet digestion, LARAN® loop digester	2003
Weidensdorf, Germany	Slop from potato processing	37 500 t/a	Wet digestion, LARAN® loop digester	2002
Haikou, China	Sewage sludge	430 000 t/a	Wet digestion biogas recirculation	2002
Barcelona, Spain	Fine screened fraction of MSW	150 000 t/a	Wet digestion, LARAN® loop digester	2002
Valladolid, Spain	Fine screened fraction of MSW	15 000 t/a	Dry digestion, LARAN® plug flow digester	2001
Yantai, China	Sewage sludge	400 000 t/a	Wet digestion biogas recirculation	2000
Radeberg, Germany	Biowaste, organic waste, sewage sludge	56 000 t/a	Wet digestion, LARAN® loop digester	1999
Heppenheim, Germany	Biowaste, garden waste, organic waste	33 000 t/a	Dry digestion, LARAN® plug flow digester	1999



Location	Plant Input	Input Biogas Plant / Capacity	Technology	Start-up
Fürstenwalde, Germany	Biowaste, organic waste, agricultural residues	85 000 t/a	Wet digestion, LARAN® loop digester	1998
Ravensburg, Germany	Municipal solid waste	1 500 t/a, Pilot Plant	Dry digestion, LARAN® plug flow digester	1996
Eurasburg/Quarzbichl, Germany	Residual waste	3-4 t/d, Pilot Plant	Dry digestion, LARAN® plug flow digester	1996
Sagard, Germany	Manure, organic food waste, biowaste, organic waste	48 000 t/a	Dry digestion, LARAN® plug flow digester	1996
Wels, Austria	Biowaste	15 000 t/a	Wet digestion, LARAN® loop digester	1996
Behringen, Germany	Organic waste, manure, agricultural residues	23 000 t/a	Wet digestion, LARAN® mixed digester	1995
Baar, Switzerland	Biowaste, garden waste, maize silage	6 000 t/a 12 000 t/a	Dry digestion, LARAN® plug flow digester	1994
Himmelgarten, Germany	Manure	18 000 t/a	Wet digestion, LARAN® loop digester	1987
Vuiteboeuf, Switzerland	Manure, rendering wastes	6 000 t/a	Wet digestion, LARAN® plug flow digester	1986
Muhen, Switzerland	Manure, rendering wastes	5 000 t/a	Wet digestion, LARAN® plug flow digester	1986
Berlstedt, Germany	Manure	140 000 t/a	Wet digestion, LARAN® loop digester	1986
Vippachedelhausen, Germany	Manure	16 000 t/a	Wet digestion, LARAN® loop digester	1985