

# **Wet Electrostatic Precipitators**



## **Reference List**

## Wet Electrostatic Precipitator

**ENVIROTHERM**

No.	Customer	Year	Material of tubes	Type of Collecting Electrodes	Material Casing	Gas Volume {m <sup>3</sup> /h(m)}	Temp. [C]	Quantity	Application	Efficiency or Gas Condition
1	Essener Steinkohlenbergwerke AG, Essen Consolidation ¼ Coke Oven Plant	1950	St	honeycomb bundle		11.000		2	Detarring	98,0%
2	Essener Steinkohlenbergwerke AG, Essen Consolidation ¾ Coke Oven Plant	1950	St	honeycomb bundle		500		1	Detarring	99,5%
3	Hüttenbergwerke Rheinhausen AG, Hannover-Hannibal ½ Coke Oven Plant	1951	St	honeycomb bundle		30.000		1	Detarring	99,5%
4	Bergbau AG, Ewald-König-Ludwig, Erkenschwick, Ewald-Forts. Coke Oven Plant	1952	St	honeycomb bundle		14.500		2	Detarring	99,5%
5	Rheinelbe Bergbau AG, Gelsenkirchen, Nordstern Coke Oven Plant	1953	St	honeycomb bundle		20.000		4	Detarring	99,1%
6	Keijzen, Amsterdam The Netherlands	1954	PVC		PVC	10.000	35	2	reactor	optically clear
7	Rheinelbe Bergbau AG, Gelsenkirchen, Alma Coke Oven Plant	1954	St	honeycomb bundle		20.000		2	Detarring	99,9%
8	Rheinelbe Bergbau AG, Gelsenkirchen, Zollverein Coke Oven Plant	1954	St	honeycomb bundle		20.000		2	Detarring	99,9%
9	BASF, Ludwigshafen Germany	1955	PVC		PVC	40.000	38	4	pyrite roaster	optically clear
10	Mannesmann Hüttenwerke, Duisburg, Mannesmann Huckingen Coke Oven Plant	1955	St	honeycomb bundle		3.000		2	Detarring	99,9%
11	BASF, Ludwigshafen Germany	1956	PVC		PVC	3.000	38	1	reactor	optically clear
12	Ilseder Hütte Steinkohlenbergwerke, Herne, Friedrich der Große Coke Oven	1956	St	honeycomb bundle		20.000		2	Detarring of cracked oil	99,9%
13	Kommunale Gas und Vandraerk, Brabant	1956	St	honeycomb bundle		350		1	Detarring of cracked oil	99,9%
14	Montedison, Porto Marghera, Italy	1957	PVC		PVC	44.000	43	6	pyrite roaster	optically clear
15	Duisburger Kupferhütte, Duisburg, Germany	1957	PVC		PVC	37.000	49	2	calciner	optically clear

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16	Rheinelbe Bergbau AG, Gelsenkirchen, Zollverein Coke Oven Plant	1957	St	honeycomb bundle		20.000		2	Detarring	99,9%
17	Rhein Stahl Bergbau AG, Bottrop, Prosper Coke Oven Plant	1957	St	honeycomb bundle		25.000		4	Detarring	99,9%
18	BASF, Sao Paulo, Brazil	1958	PVC		PVC	1.000	38	1	sulphur combustion	
19	Friedrich Uhde GmbH, Dortmund, Electrolytic O <sub>2</sub> -plant, Aswan	1958	St	honeycomb bundle		8.500		2	KOH-mist in O <sub>2</sub> -stream	99,8%
20	Steinkohlenbergbau, Essen, Emil Coke Oven Plant	1958	St	honeycomb bundle		2.750		1	Detarring	99,9%
21	Harpener Bergbau AG, Dortmund, Gneisenau Coke Oven Plant	1959	St	honeycomb bundle		20.000		2	Detarring	99,9%
22	Ferrostaal, Essen; USIMINAS Brazil	1959	St	honeycomb bundle		14.000		2	Detarring of cracked oil	99,9%
23	Papierfabrik Perlen, Switzerland	1960	PVC		PVC	2.000	32	1	sulphur combustion	optically clear
24	Osram, Munich/ Demag, Duisburg, Oil cracking plant, Brazil	1960	St	honeycomb bundle		1.100		1	Detarring	99,9%
25	ARBED Saarbrücken, Burbacher Hütte Coke Oven Plant	1960	St	honeycomb bundle		25.000		1	Detarring	99,8%
26	BASF, Ludwigshafen Germany	1961	PVC		PVC	4.000	38	2	reactor	optically clear
27	Duisburger Kupferhütte, Duisburg, Germany	1961	PVC		PVC	2.000	49	1	chlorinatingroasting	optically clear
28	Vergasungs-Industrie AG, Vienna, Gas works in Poland	1961	St	honeycomb bundle		2.000		1	1st stage detarring 2nd stage deoiling	99,9%
29	Staatsmijnen, Geleen, Netherlands	1962	St	honeycomb bundle		22.000		1	Ammonium nitrat mist	98,5%
30	Hüttenwerke Salzgitter, Salzgitter Segasanlage	1962	St	honeycomb bundle		11.000		2	Detarring	99,9%

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31	Saarbergwerke AG Saarbrücken, Fürstenhausen Coke Oven Plant	1963	St	honeycomb bundle		22.000		2	Detarring	99,9%
32	Vergasungs-Industrie AG, Vienna, Gas works in Poland	1963	St	honeycomb bundle		5.400 10.800		4	2 Detarring 1 Decilling 1 alternatively reactor	99.9 99.9 optically clear
33	CIBA, Monthey, Switzerland	1964	PVC/FRP		PVC/FRP	20.000	38	1		optically clear
34	BASF, Ludwigshafen, Germany	1965	PVC/FRP		PVC/FRP	15.000	52	1	pyrite roaster	optically clear
35	Large corporation/ chemical industry	1965	PVC	honeycomb bundle		4.000		1	Elimination of mist comprising wet chloric gas	99,0%
36	Friedrich Uhde GmbH, Dortmund, for a large corporation/ chemical industry	1965	PVC	honeycomb bundle		2.000		1	Mist comprising chloric gas	99,0%
37	Rheinelbe Bergbau AG, Gelsenkirchen, for Zollverein Essen Coke Oven Plant	1965	St	honeycomb bundle		20.000		2	Detarring	99,9%
38	BAYER AG, Leverkusen	1966	PVC/FRP		rubber lined steel	10.000	66	1	combustion furnace	optically clear
39	Carl Still, Recklinghausen, Hannover-Hannibal Coke Oven Plant, Bochum	1966	St	honeycomb bundle		30.000		1	Detarring	99,9%
40	Masin-Import, Bukarest, Romania, lime furnaces of Uzinele de Produze Sodica, Sovora	1966	St	Vertical Plate		15.000		2	Dedusting of lime furnace waste gas	97,5%
41	Chemische Werke Treibach, Austria	1967	PVC		rubber lined steel	3.000	43	1	vanadium roasting	optically clear
42	Large corporation / chemical industry	1967	PVC	honeycomb bundle		3.200		1	Cleaning of wet chloric gas	99,0%
43	Chemische Werke Hüls AG, Marl, for Marl-Hüls Chlorine Works	1967	PVC	honeycomb bundle		6.000		1	Cleaning of wet chloric gas	99,9%
44	Monopol-Bergwerkgesellschaft, Kamen, gas desulphurization plant	1967	St	honeycomb bundle		25.000		2	Detarring	99,9%
45	Péchiney-Saint-Gobain, France, for a chlorine gas plant in Lavérn	1967	PVC	honeycomb bundle		5.000		2	Cleaning of wet chloric gas	99,0%

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46	BASF, Ludwigshafen, Germany	1968	PVC/FRP	rubber lined steel	rubber lined steel	36.000	35	2	acid cleanage	optically clear
47	BASF, Ludwigshafen, Germany	1968	PVC/FRP	rubber lined steel	rubber lined steel	12.000	60	1	acid cleanage	optically clear
48	Cartiera di Tolmezzo, Italy	1968	PVC	PVC	PVC	2.000	32	1	pyrite roaster	optically clear
49	Titangesellschaft, Leverkusen, Connection to a sulphuric acid scrubbing tower	1968	PVC	honeycomb bundle	honeycomb bundle	8.400		1	Cleaning of gas containing TiO <sub>2</sub>	95,0%
50	Péchiney-Saint-Gobain, France, for a chlorine factory in Saint Gobain	1968	PVC	honeycomb bundle	honeycomb bundle	5.000		2	Cleaning of wet chloric gas	99,0%
51	Zahn & Co., Chemie-Anlagenbau, Hameln, for lime furnace gas cleaning at soda factory, Karachi/Pakistan	1968	St	Vertical Plate	Vertical Plate	8.000		1	Dedusting of lime furnace waste gas	97,5%
52	Large corporation/ chemical industry	1968	PVC	honeycomb bundle	honeycomb bundle	5.000		2	Cleaning of wet chloric gas	99,8%
53	Large corporation / chemical industry	1968	PVC	honeycomb bundle	honeycomb bundle	20.000		2	Cleaning of wet chloric gas	98,0%
54	Chemische Werke Hüls AG, Marl, for the chlorine factory at Marl Hüls	1968	PVC	honeycomb bundle	honeycomb bundle	7.000		1	Cleaning of wet chloric gas	99,0%
55	Titangesellschaft Leverkusen, for a gas cleaning plant in the Leverkusen Works	1968	PVC	honeycomb bundle	honeycomb bundle	8.400		1	Cleaning of gas containing TiO <sub>2</sub>	95,0%
56	Large corporation / chemical industry	1968	PVC	honeycomb bundle	honeycomb bundle	8.400		1	Cleaning of wet chloric gas	99,0%
57	Large corporation / chemical industry	1968	PVC	honeycomb bundle	honeycomb bundle	6.000		1	Cleaning of wet chloric gas	99,9%
58	Large corporation / chemical industry	1968	PVC	honeycomb bundle	honeycomb bundle	3.500		1	Cleaning of wet chloric gas	99,0%
59	Large corporation / chemical industry	1968	PVC	honeycomb bundle	honeycomb bundle	4.400		2	Removal of acid carry-over from the exhaust air	99,0%
60	Industrial-Export, Bukarest, El Mex soda factory in Alexandria	1968	St	Vertical Plate	Vertical Plate	15.000		2	Dedusting plant	97,5%

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61	FPC, Le Havre, France	1969	PVC/FRP		PVC/FRP	80.000	71	4	calcining for TiO <sub>2</sub> -production	96,0%
62	Goldfields, South Africa	1969	PVC/FRP		PVC/FRP	22.000	50	2	pyrite roaster	optically clear
63	BAYER AG, Leverkusen, Germany	1969	PVC/FRP		PVC/FRP	55.000	35	3	pyrite roaster	optically clear
64	Albright & Wilson, Whitehaven, England	1969	PVC/FRP		PVC/FRP	72.000	32	2	tail gas cleaning	99,5%
65	NET, Arklow, Ireland	1969	PVC/FRP		PVC/FRP	29.000	45	2	pyrite roaster	optically clear
66	Large corporation / chemical industry	1969	W PVC		rubber lined steel	4.000		1	Elimination of mist comprising wet chloric gas	99,0%
67	Large corporation / chemical industry	1969	PVC	honeycomb bundle		1.200		1	Cleaning of CO-gas	96,7%
68	Péchiney-Saint-Gobain, France, for a chlorine gas plant in Lavéra	1969	PVC	honeycomb bundle		5.900		2	Cleaning of wet chloric gas	99,0%
69	Friedrich Uhde GmbH, Dortmund, for a large corporation/ chemical industry	1970	W PVC		rubber lined steel	2.000		1	Mist comprising chloric gas	99,0%
70	Large corporation / chemical industry	1970	W PVC		rubber lined steel	3.000		1	Cleaning of wet chloric gas	99,0%
71	Chemische Werke Hüls AG, Marl, for Marl-Hüls Chlorine Works	1970	W PVC		rubber lined steel	6.000		1	Cleaning of wet chloric gas	99,9%
72	Péchiney-Saint-Gobain, France, for a chlorine gas plant in Lavérn	1970	W PVC		rubber lined steel	5.000		2	Cleaning of wet chloric gas	99,0%
73	Large corporation / chemical industry	1970	W PVC		rubber lined steel	6.000		2	Cleaning of wet chloric gas	99,8%
74	Large corporation / chemical industry	1970	W PVC		rubber lined steel	20.000		2	Cleaning of wet chloric gas	98,0%
75	Chemische Werke Hüls AG, Marl, for Marl-Hüls Chlorine Works	1970	W PVC		rubber lined steel	7.000		1	Cleaning of wet chloric gas	99,9%

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76	Péchiney-Saint-Gobain, France, for a chlorine gas plant in Lavérn	1970	W PVC		rubber lined steel	5.000		2	Cleaning of wet chloric gas	99,0%
77	Cinkarna, Celje, Yugoslavia	1970	PVC/FRP		PVC/FRP	40.000	73	2	calcining for the production of TiO2	optically clear
78	Norddeutsche Affinerie, Hamburg, Germany	1970	PVC/FRP		PVC/FRP	203.000	38	4	copper converter and Auto-kumpu furnace	optically clear
79	FPC, Thann, France	1970	PVC/FRP		PVC/FRP	20.000	73	1	calcining for the production of TiO2	96,0%
80	Friedrich Uhde GmbH, Dortmund, for a chlorine gas plant	1970	PVC	honeycomb bundle		5.250		1	Cleaning of wet chloric gas	99,0%
81	Produits Chimiques Ugine Kuhlmann S. A., Jarrie, France; chlorine gas plant Grenoble	1970	PVC	honeycomb bundle		700		3	Cleaning of wet chloric gas	99,0%
82	Didier Engineering GmbH, Essen; coke oven plant Metallhüttenwerk Lübeck	1970	St	honeycomb bundle		11.200		1	Detarrer	99,0%
83	Carl Still, Recklinghausen, NV Sidmar Coke Oven By-Product Plant, Gent/Belgium	1970	St	honeycomb bundle		50.000		2	Detarrer	99,9%
84	Det Norske Zinkkompani A/S, Odda, Norway	1971	PVC/FRP		PVC/FRP	10.000	71	1	zinc blende roasting	98,0%
85	N.V. Bayer S.A., Antwerp, Belgium	1971	PVC/FRP		PVC/FRP	34.000	74	1	calcining for the production of TiO2	99,0%
86	Inspiration Consolidated Copper Co., Inspiration, USA	1971	PVC/FRP		PVC/FRP	216.000	40	8	copper converter	optically clear
87	Koninklijke Hoogovens Staalfabrieken N.V.; coke oven plant Ijmuiden/NL	1971	St	honeycomb bundle		45.000		2	Detarrer	99,5%
88	Dillinger Hüttenwerke, for the Dillingen-Saar Coke Oven Plant	1971	St	honeycomb bundle		30.000		1	Detarrer	99,9%
89	Bergbau AG, Oberhausen, for the Osterfeld Coke Oven Plant	1971	St	honeycomb bundle		43.000		2	Detarrer	99,9%
90	Koninklijke Hoogovens Staalfabrieken N.V.; coke oven plant Ijmuiden/NL	1971	St	honeycomb bundle		70.000		1	Detarrer	98,8%

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91	Koninklijke Hoogovens Staalfabrieken N.V.; coke oven plant (Jimuiden/NL)	1971	St	honeycomb bundle		55.000		1	Detarrer	98,7%
92	Carl Still, Recklinghausen, for Zollverein Essen Coke Oven Plant	1971	St	honeycomb bundle		42.000		1	Detarrer	99,9%
93	Anaconda Corp., Anaconda, Ma, USA	1972	PVC/FRP		PVC/FRP	129	27	4	copper converter	99,0%
94	Métallurgie Hoboken-Overpelt, Hoboken, Belgium	1972	PVC		rubber lined steel	4.000	54	2	cupola furnace	99,0%
95	Péchiney-Saint-Gobain, France, for the chlorine gas plant at Saint Aubin	1972	PVC	honeycomb bundle		3.070		1	Cleaning of wet chloric gas	99,0%
96	Carl Still, Recklinghausen, Wachtberg briquet factory, Frechen, D	1972	St	honeycomb bundle		12.000		1	Detarrer	99,8%
97	Impala Platinum Ltd., Marshalltown, South Africa	1973	PVC/FRP		PVC/FRP	40.000	34	2	converter	99,0%
98	Thann et Mulhouse, Le Havre, France	1973	PVC/FRP		PVC/FRP	40.000	76	3	calcining for the production of TiO2	optically clear
99	E. Z. Risdon, Australia	1973	PVC/FRP		rubber lined steel	40.000	40	1	zinc blende roaster	98,0%
100	Didier Engineering, Essen for Providence Coke Oven Plant in Chatferoi/Belgium	1973	St	honeycomb bundle		13.000		2	Detarrer	99,9%
101	Large corporation/ chemical industry	1973	St	honeycomb bundle		1.200		1	Cleaning of CO-gas	96,7%
102	Nitrogen Chemicals of Zambia Ltd., Lusaka/Zambia, for fertilizer factory Kafue	1973	St	honeycomb bundle		12.300		1	Cleaning of wet gas coming from a gasification plant	97,2%
103	Carl Still, Recklinghausen, for Prosper Coke Oven Plant in Bottrop	1973	St	honeycomb bundle		8.000		1	Detarrer	99,9%
104	Carl Still, Recklinghausen for Erin Coke Oven Plant, Castrop-Rauxel	1973	St	honeycomb bundle		50.000		1	Detarrer	99,9%
105	S.I.R. Porto Torres, Italy	1974	PVC/FRP		PVC/FRP	45.000	78	1	calcining for the production of TiO2	99,0%



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106	Asturiana de Zinc, Aviles, Spain	1974	PVC/FRP		FRP	37.000	35	3	zinc blende roaster	optically clear
107	Kronos Titan GmbH, Nordenham, Germany	1974	PVC		FRP	17.000	77	1	calcining for the production of TiO <sub>2</sub>	optically clear
108	Kronos Titan G mbH, Frederisstad, Norway	1974	PVC/FRP		PVC/FRP	8.000	77	1	calcining for the production of TiO <sub>2</sub>	99,0%
109	Métallurgie Hoboken-Overpelt, Hoboken, Belgium	1974	PVC		rubber lined steel	2.000	27	1	selenium cupola furnace	99,0%
110	Didier Engineering GmbH, Essen, Yscor Coke Oven Plant Vanderbilpark, South Africa	1974	St	honeycomb bundle		46.500		3	Detarrer	99,9%
111	Heinrich Koppers GmbH, Essen, for Lulea Coke Oven Plant/ Sweden	1974	St	honeycomb bundle		46.800		3	Detarrer	99,9%
112	Didier Engineering GmbH, Essen, Providence Coke Oven Plant; Charleroi, Belgium	1974	St	honeycomb bundle		13.000		1	Detarrer	99,9%
113	Heinrich Koppers GmbH, Essen, for Cosipa Coke Oven Plant in Santos/Brazil	1974	St	honeycomb bundle		33.500		2	Detarrer	99,5%
114	Heinrich Koppers GmbH, Essen, for Monclova Coke Oven Plant, Mexico	1974	St	honeycomb bundle		26.900		3	Detarrer	99,8%
115	Davy Powergas GmbH, Köln, for Duisburg Kupferhütte	1974	PVC	tube bundle		31.000		2	Waste gas coming from a ZnO-drying system	98,5%
116	Schloemann Siemens AG, Düsseldorf, Fa. Alleghany, Genk works/ Belgium	1974	St	honeycomb bundle		50.000		1	Blow-torch cutting-off machine for a continuous casting	98,0%
117	Bergbau AG, Westfalen, for Heinrich Robert Coke Oven Plant	1974	St	honeycomb bundle		32.000		1	Detarrer	99,9%
118	Delattre, Levivier Paris, for Posco Coke Oven Plant in South Korea	1974	St	honeycomb bundle		51.000		1	Detarrer	99,9%
119	Produits Chimiques UGINE Kuhlmann S. A., Jarrige, France; chlorine gas plant Grenoble	1975	W PVC	rubber-lined steel		7.000		3	Cleaning of wet chloric gas	99,0%
120	Anglo American Corp., Johannesburg, Welcom, South Africa	1975	PVC/FRP		PVC/FRP	94.000	38	5	pyrite roaster	optically clear

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121	A.M.M.I. S.p.A., Venezia, Mestre, Italy	1975	PVC/FRP		PVC/FRP	30.000	35	3	zinc blende roaster	optically clear
122	Dr. C. Otto & Comp. GmbH, Bochum, for Kachisung Coke Oven Plant, Taiwan	1975	St	honeycomb bundle		22.500		2	Detarrer	99,9%
123	Bergbau AG, Geisenkirchen, Zollverein Coke Oven Plant	1975	St	honeycomb bundle		40.000		1	Detarrer	99,9%
124	Bergbau AG, Westfalen, Gneisenau Coke Oven Plant	1975	St	honeycomb bundle		20.000		1	Detarrer	99,8%
125	Delattre, Levivier Paris, Sisak Coke Oven Plant/ Jugoslavia	1975	St	honeycomb bundle		27.500		2	Detarrer	99,9%
126	Krupp Koppers GmbH, Essen, Prosper Coke Oven Plant; Bottrop, Germany	1975	St	honeycomb bundle		1.800		1	Detarrer	97,5%
127	Krupp Koppers GmbH, Essen, Prosper Coke Oven Plant; Bottrop, Germany	1975	St	honeycomb bundle		3.000		1	Detarrer	99,9%
128	Friedrich Uhde GmbH, Dortmund, for a large corporation/ chemical industry	1975	PVC	honeycomb bundle		7.300		1	Elimination of saline mist from wet chlorine gas	99,0%
129	ATH, Duisburg, for scarfing machines, Duisburg-Beeckerwerth works	1975	St	Horizontal Plate		-		1	Internals for a wet-type electrostatic precipitator for a pyrite roaster	-
130	Anglo American Corp., Johannesburg, ERGO I., South Africa	1976	PVC/FRP		PVC/FRP	94.000	38	5		optically clear
131	Phelps Dodge Corp., Arizona, Site of Installation: Hidalgo, New Mexico, USA	1976	PVC/FRP		FRP	212.000	35	6	copper converter	optically clear
132	Anglo American Corp., Johannesburg, ERGO II, South Africa	1976	PVC/FRP		PVC/FRP	47.000	38	3	pyrite roaster	99,5%
133	MoDoCell AG, Örnsköldvik, Sweden	1976	PVC/FRP		PVC/FRP	19.000	32	1	pyrite roaster	99,0%
134	Jersey Miniere Zinc Co., Clarksville, Tenn. USA	1976	PVC		lined steel	38.000	38	2	zinc blende roaster	optically clear
135	Large corporation / chemical industry	1976	PVC	Tube bundle		7.800		1	Chemical waste incineration	99,0%

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136	Large corporation / chemical industry	1976	St	honeycomb bundle		1.500		1	Decusting of CO-gas	96,7%
137	Koppers France S. A., Paris for El Hadjar Coke Oven Plant / Algeria	1976	St	honeycomb bundle		40.000		1	Detarring	99,9%
138	Dr. C. Otto & Comp. GmbH, Bochum, for San Giuseppe Coke Oven Plant, Italy	1976	St	honeycomb bundle		20.000		2	Detarring	99,9%
139	Chalivourgiki, Athen, for their coke oven plant	1976	St	honeycomb bundle		1.000		1	Detarrer	94,0%
140	Large corporation / chemical industry	1976	St	honeycomb bundle		Versuchsfiler		1	Separation of chemical dust and mist, which are aggressive	-
141	Sybeta, Brussels; Coke Oven Plant Posco/South Korea	1976	St	honeycomb bundle		45.000		2	Detarrer	99,9%
142	Dr. C. Otto & Comp. GmbH, Bochum, for Saarberg-Fernwärme	1976	St	honeycomb bundle		950		1	Detarrer	100,0%
143	Friedrich Uhde GmbH, Dortmund, for a large corporation/ chemical industry	1977	St	W PVC	rubber-lined steel	7.000		1	Elimination of saline mist from wet chlorine gas	99,0%
144	SYBETRA for Onsan, Korea	1977	PVC/FRP			2.000	55	1	selenium cupola furnace	98,0%
145	Marchon France, Saint Mihiel, France	1977	PVC		PVC/FRP	15.000	60	1	sulfonation plant	99,0%
146	Delattre Levivier, Paris, for Marienau Coke Oven Plant/ France	1977	St	honeycomb bundle		55.000		1	Detarrer	99,9%
147	Large corporation/ chemical industry	1977	PVC	Tube bundle		3.800		1	Separation of sulphuric acid mist	99,8%
148	Large corporation/ chemical industry	1978		W PVC		4.000		1	Separation of sulphuric acid mist	99,8%
149	Techmashimport, Moscow, Russia	1978	PVC		PVC/FRP	17.000	73	2	waste gas	99,9 %
150	INCEL, Yugoslavia	1978	PVC			9.000	40	1	sulfur combustion	99,6 %

## Wet Electrostatic Precipitator

**ENVIROTHERM**

No.	Customer	Year	Material of tubes	Type of Collecting Electrodes	Material Casing	Gas Volume (m <sup>3</sup> /h(m))	Temp. [C]	Quantity	Application	Efficiency or Gas Condition
151	Cinkarna, Celje, Yugoslavia	1978	PVC		rubber lined steel	50.000	73	2	calcining for the production of TiO <sub>2</sub>	98,5%
152	Large corporation/ chemical industry, Germany	1978		W PVC	rubber lined steel	6.000		1	Cleaning of hydrochloric waste gas	99,8%
153	Davy Powergas, Cologne, for a large corporation/ chemical industry/Germany	1978		KN		8.000		1	Incineration plant for spent acid	99,4%
154	Large corporation/ chemical industry	1978	W PVC		rubber lined steel	6.000		2	Cleaning of wet chloric gas	99,8%
155	Italsider SpA, Italy	1978				32.000		1		
156	Dr. C.Otto & Comp. GmbH, Bochum; Posco Coke Oven Plant in South Korea	1978	St	honeycomb bundle		45.000		2	Detarrer	99,9%
157	Voest Alpine Montan AG, Linz, Austria; continuous casting machine Posco/ Korea	1978	St	honeycomb bundle		2.500		1	Detarrer (coke oven gas)	87,5%
158	Davy Powergas GmbH, Köln, for Duisburg Kupferhütte	1979		VTB	rubber lined steel	31.000		2	waste gas coming from a ZnO-drying system	98,5%
159	EZ, Risdon, Australia	1979	PVC			85.000	40	4	zinc blende roaster	98,5%
160	Hannoversche Zellstoff, Germany	1979	PVC/FRP			5.000	40	1	sulfur combustion	99,0%
161	Norddeutsche Affinerie, Hamburg, Germany	1979	PVC		rubber lined steel	3.000	60	1	cupola furnace for selenium	99,0%
162	Treibacher Chem. Werke, Treibach, Austria	1979	PVC		rubber lined steel	8.000	60	1	multiple hearth furnace for vanadium slag	97,0%
163	Molymet, Santiago, Chile	1979	PVC/FRP		rubber lined steel	28.000	54	1	multiple hearth furnace for molybdenite	98,0%
164	TMMIC, Taiwan	1979	PVC		rubber lined steel	7.000	50	1	cupola furnace for selenium	
165	Anglo American Corp., Johannesburg, Welkom, South Africa	1979	PVC		PVC/FRP	40.000	40	1	pyrite roaster	optically clear

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**ENVIROTHERM**

No.	Customer	Year	Material of tubes	Type of Collecting Electrodes	Material Casing	Gas Volume (m <sup>3</sup> /h(m))	Temp. [C]	Quantity	Application	Efficiency or Gas Condition
166	TIBRAS, Brazil	1979	PVC/FRP	rubber lined steel	rubber lined steel	44.000	75	1	calcining for the production of TiO2	95,0%
167	Davy Powergas, Cologne, for a large corporation/ chemical industry/Germany	1979	PVC	Tube bundle		8.250		1	Incineration plant for spent acid	99,4%
168	Carl Still, Recklinghausen, for Anna Coke Oven Plant, Alsdorf	1979	St	honeycomb bundle		550		1	Dedusting of strong gas coming from the hard coal	99,9%
169	Large corporation/ chemical industry, Germany	1979	PVC	Tube bundle		6.000		1	Cleaning of hydrochloric waste gas	99,8%
170	Carl Still, Recklinghausen, for China Steel Corporation Taiwan/ Kaohsiung	1979	St	honeycomb bundle		30.000		2	Detarrer (coke oven gas)	99,9%
171	Steinmüller, Gummersbach, for a large corporation/ chemical industry/ Germany	1979	PVC	Tube bundle		17.200		1	Incineration plant for spent acid	99,5%
172	Large corporation/ chemical industry, Germany	1980		W PVC	rubber lined steel	6.000		1	Cleaning of hydrochloric waste gas	99,8%
173	Steinmüller, Gummersbach, for a large corporation/ chemical industry/ Germany	1980		KN		17.000		1	Incineration plant for spent acid	99,5%
174	NCCM, Rokana, Zambia	1980	PVC		steel homogeneously lead coated	17.000	40	2	roaster for copper converter	99, 8 %
175	DEGUSSA, Wesseling, Germany	1980	PVC		steel homogeneously lead coated	38.000	40	2	roaster for copper concentrate	98,6 %
176	Techmashimport, Moscow, Russia	1980	PVC		PVC/FRP	17.000	73	2	waste gas	99,9 %
177	Thann et Mulhouse, Le Havre, France	1980	PVC/FRP		PVC/FRP	35.000	76	2	calcining for the production of TiO2	96,0%
178	TIBRAS, Brazil	1980	PVC/FRP		rubber lined steel	55.000	75	1	calcining for the production of TiO2	98,5%
179	Mc Kee, Cleveland/Ohio, for Bethlehem Steel Corp., Maryland/ USA	1980	St	honeycomb bundle		21.000		1	Detarrer	98,0%
180	Kaiser/Didier, for Republic-Steel Corp., Illinois, USA	1980	St	honeycomb bundle		19.850		2	Detarrer	99,0%

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No.	Customer	Year	Material of tubes	Type of Collecting Electrodes	Material Casing	Gas Volume (m <sup>3</sup> /h(m))	Temp. [C]	Quantity	Application	Efficiency or Gas Condition
181	Duisburger Kupferhütte, Duisburg	1980	St	Horizontal Plate		76.000		1	In-plant dedusting system for a pig-iron desulphurization	98,2%
182	Bergbau AG, Lippe for Hassel Coke Oven Plant	1980	St	honeycomb bundle		45.000		3	Detarrer internals	99,8%
183	Dr. C. Otto & Comp. GmbH, Bochum	1980	St	honeycomb bundle		1.000		1	Detarrer	99,9%
184	Aktiengesellschaft der Dillinger Hüttenwerke	1980	St	honeycomb bundle		60.000		1	Wet-type electrostatic precipitator for the scarfing system of a calcining for the production of TiO <sub>2</sub>	98,8%
185	TIOFINE, Rozenburg, The Netherlands	1981	PVC-C		rubber lined steel	15.000	75	1		99,0%
186	FORET, Spain	1981	PVC		rubber lined steel	65.000	40	4	pyrite roaster	99,73 %
187	RCM, Zambia	1981	PVC		steel homogeneously lead coated	60.000	40	4	roaster for copper concentrate	99,8 %
188	Rössing, Namibia	1981	PVC		rubber lined steel	50.000	40	2	pyrite roaster	99,66 %
189	Kemira Oy, Finland	1981	PVC		steel homogeneously lead coated	43.000	40	2	roaster for zinc blende	99,33 %
190	Metago, Brazil	1981	PVC		steel homogeneously lead coated	17.000	40	2	pyrite roaster	99,87 %
191	Kemira Oy, Finland	1981	PVC		steel homogeneously lead coated	58.000	40	2	pyrite roaster	99,3 %
192	A.P.S.A. Mexico	1981	PVC		steel homogeneously lead coated	120.000	40	6	pyrite roaster	
193	Bleiberger Bergwerks-Union, Austria	1981	PVC		rubber lined steel	17.000	40	2	zinc blende roaster	99,0%
194	Dr. C. Otto & Comp. GmbH, Bochum, for Posco Coke Oven Plant/ South Korea	1981	St	honeycomb bundle		45.000		2	Detarrer	99,9%
195	N.V. Bayer, Antwerpen, Belgium	1982	PVC		PVC/FRP	34.000	75	1	calcining for the production of TiO <sub>2</sub>	99,0%

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No.	Customer	Year	Material of tubes	Type of Collecting Electrodes	Material Casing	Gas Volume (m <sup>3</sup> /h(m))	Temp. [C]	Quantity	Application	Efficiency or Gas Condition
196	EMPRESA Nacional Minas de Almagrera S.A., Spain	1982	PVC		PVC/FRP	67.000	45	4	pyrite roaster	99,7 %
197	LONZA AG, Visp, Switzerland	1982	PVC	honeycomb tube bundle	rubber lined steel	26.000		1	incineration plant for chemical waste	95,0%
198	SAMIN, Porto Vesme, Italy	1982	PVC		PVC/FRP	70.000	45	2	zinc blende roaster	99,0%
199	Norddeutsche Affinerie, Hamburg, Germany	1982	PVC		PVC/FRP	50.000	45	1	Cu flash furnace	95,0%
200	Tubaro, Brazil	1982				3 x 33350		3		
201	Otto Dürr, Stuttgart, for Mercedes automobile works	1982	St	Horizontal Plate		36.000		1	Exhaust air cleaning system for a paint spraving plant	99,0%
202	Bayer, Brazil	1982	St	honeycomb bundle		1.500		1	Cleaning of CO-gas	96,7%
203	Kemira Oy, Harjavalta, Finland	1983	PVC		PVC/FRP			2	pyrite roaster	99,0%
204	Kennecott, USA	1983	PVC		PVC/FRP	12.000	50	2	Cu flash	99,8 %
205	Companis Neerlandaise de L'Azote S.A. Belgium	1983				15.000		1		
206	Dr. C. Otto & Comp. GmbH, Bochum, for ZKS Coke Oven Plant/Dillingen	1983	St	honeycomb bundle		76.000		2	Detarring	99,9%
207	Bethlehem Steel Corp., Maryland / USA	1983	St	honeycomb bundle		35.900		3	Detarrer	98,4%
208	Cockerill-Sambre Seraing, Belgium	1983	St	honeycomb bundle		23.500		2	Detarrer	99,7%
209	Thyssen Stahl AG, Duisburg, for decanting works West, Duisburg-Beeckerwerth works	1983	St	Horizontal Plate		-		1	Internals Wet E.P.	-
210	Dr. C. Otto, Bochum, for Kwangyang, Korea	1983	St	honeycomb bundle		42.000		2	Pia-iron decantina Detarrer	99,9%

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**ENVIROTHERM**

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211	Bergbau AG Lippe for Scholven Coke Oven Plant	1983	St	honeycomb bundle		54.200		2	Detarrer	99,9%
212	Consortium Rolling Mill Plant for Paoshan - PR China	1983	St	honeycomb bundle		21.150		1	Detarrer	90,0%
213	Cominco Bihani Zinc Ltd., India	1984	PVC		PVC/FRP	15.000	45	2	zinc blende roaster	99,7 %
214	SAMIN, Porto Vesme, Italy	1984	PVC		PVC/FRP	12.000	45	2	lead smelter Kivzet process	97,5 %
215	S.N.S., Ghazaouet, Algeria	1984	PVC		PVC/FRP		45	2	zinc blende roaster	99,0 %
216	Hoogovens Goep BV Ijmuiden/NL	1984		W PVC	rubber lined steel	11.000		1	Separation of sulphuric acid	99,9%
217	RONTEALDE, S.A., Spain	1985	PVC		PVC/FRP	58.000	45	3	pyrite roaster	99,6 %
218	Chevron USA Inc., Hawaii, USA	1985	PVC	honeycomb tube bundle	PVC/FRP	9.000	40	1	cracking furnace for spent acid	99,5 %
219	Kokerei Prosper, Germany	1985				17.000		1		
220	Huilleres de Bassin du Nord de Pasdu-Calais, France	1985				56.000		1		
221	Carbotechnica, Genua for Piombino Coke Oven Plant	1985	St	honeycomb bundle		23.500		1	Detarrer	99,9%
222	Carbotechnica, Genua for Piombino Coke Oven Plant	1985	St	honeycomb bundle		30.500		1	Detarrer internals	99,9%
223	Bergbau AG Lippe for Hassel Coke Oven Plant	1985	St	honeycomb bundle		45.000		2	Detarrer internals	99,87,5%
224	Stein Heurtey for Baoshan - PR China	1985	St	honeycomb bundle		55.600		1	Detarrer	91,0%
225	Hoogovens Goep BV Ijmuiden/NL	1985	St	honeycomb bundle		11.000		1	Separation of sulphuric acid	99,9%



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226	CODELCO, Chuquicamata, Chile	1986	PVC		steel / Flakeline	192.000	40	6	CMTT converter + Outokumpu furnace	98,5 %
227	Kemira Oy, Kokkola, Finland	1986	PVC	honeycomb tube bundle	rubber lined steel	16.000	60	1	incineration plant for chemical waste	93,3 %
228	Korean Zinc Co., Ltd., Seoul, Korea	1986	PVC		PVC/FRP	55.000	40	2	zinc blende roaster	99,0%
229	Korea Ship Building Busan for Kwangyang, Korea	1986	St	honeycomb bundle		50.000		2	Detarrer	99,9%
230	Uhde Dortmund, Large corporation/ chemical industry	1987		W PVC	rubber lined steel	1.000		2	Separation of sulphuric acid	99,5%
231	Kemira Inc., Savannah, Ga., USA	1987	PVC-C		PVC/FRP	128.000	77	3	calcining for the production of TiO2	99,6 %
232	Müllheizkraftwerk Coburg, Germany	1987	PVC	honeycomb tube bundle	rubber lined steel	106.000	65	2	incineration plant for municipal waste	75,0%
233	Pyrites, Phosphates & Chemicals Ltd., Amjhore, India	1987	PVC		PVC/FRP	31.000	41	2	pyrite roaster	99,8 %
234	Hindustan Zinc Ltd., Chittorgarh, India	1987	PVC		PVC/FRP	96.000	34	4	lead smelter plant	99,0%
235	Nestle, Amsterdam, The Netherlands	1987	PVC	honeycomb tube bundle	rubber lined steel	18.000	50	1	incineration plant for chemical waste	97,3 %
236	GSB, Ebenhausen, Germany	1987	PVC	honeycomb tube bundle	PVC/FRP	56.000	50	1	incineration plant for chemical waste	80,0%
237	Nuova Itaisider SpA, Italy	1987				2 x 67000		4		
238	Daimler Benz AG, Germany	1987				45.000		1		
239	Uhde Dortmund, Large corporation/ chemical industry	1987	PVC	Tube bundle		1.000		2	Separation of sulphuric acid	99,5%
240	Sidmar - Gent	1987	St	honeycomb bundle		50.000		2	Detarrer	99,9%

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241	Rhone Poulenc, France	1988	PVC	honeycomb tube bundle	PVC/FRP	75.000	50	1	H <sub>2</sub> S-combustion	95,0%
242	Müllheizkraftwerk Coburg-Neuses, Germany	1988	PVC		rubber lined steel	60.000	60	2	incineration of municipal waste	99,0%
243	GEVUDO, Dordrecht, The Netherlands	1988	PVC		rubber lined steel	73.000	67	4	incineration of municipal waste	99,0%
245	Steinmüller GmbH for BAYER AG, Leverkusen, Germany	1988	PVC		St/rubber lined	66.000	61	2	incineration plant for chemical waste	90,0%
246	DEGUSSA, Wesseling, Germany	1988	PVC	honeycomb tube bundle	steel homogeneously lead lined PVC/FRP	52.000	32	1	cracking furnace	99,0%
247	Stauffer, Wesseling, Germany	1988	PVC			69.000	49	2	cracking furnace for spent acid	99,65 %
248	Wasserverband Hessischer Ried, Germany	1988				11.000		1		
249	Jacobi GmbH Hennef	1988	St	honeycomb bundle		8.000		1	2 - Cupola melting furnaces provided with 1 downstream scrubber Detarrer	96,7%
250	Neue Metallhüttenwerke Lübeck	1988	St	honeycomb bundle		40.000		1		99,9%
251	Korea Zinc Co., Onsan, Korea	1989	PVC		PVC/FRP	32.000	38	2	lead furnace (QSL)	99,65 %
252	BASF AG, Ludwigshafen, Germany	1989	PVC-C		PVC/FRP	35.000	35	2	cracking furnace for spent acid	99,55 %
253	Phelps Dodge, USA	1989	PVC		PVC/FRP	40.000	70	1	copper smelter	99,7 %
254	Cortez Gold Mines, Cortez, USA	1989	PVC	honeycomb tube bundle	rubber lined steel	31.000	65	1	pyrite roaster	90,0%
255	Métallurgie Hoboken-Overpelt, Belgium	1989	PVC	honeycomb tube bundle	PVC/FRP	58.000	55	3	metallurgical process	99,18 %
256	CHEMETICS for ICI, Kaohsiung, Taiwan	1989	PVC	honeycomb tube bundle	PVC/FRP	60.000	32	2	sulfuric acid recovery	99,75 %

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257	N.V. Sadaci, Gent, Belgium	1989	PVC		PVC/FRP	34.000	35	1	multiple hearth furnace for molyb.	
258	Wacker Chemie GmbH, Burghausen, Germany	1989	PVC-C	honeycomb tube bundle	rubber lined steel	13.000	65	1	incineration plant for chemical waste	98,75 %
259	Soc. des Mines et Fonderies de Zinc de la Vieille Montagne, Balen, Belgium	1989	PVC	honeycomb tube bundle	PVC/FRP	100.000	40	1	zinc blende roaster	90,0%
260	MOLYMET, Santiago, Chile	1989	PVC-C		rubber lined steel	38.000	52	2	roaster for molybdenite	98,0%
261	Gebr. Sulzer AG, Winterthur, for Sachtleben GmbH, Germany	1989	PVC-C	honeycomb tube bundle	PVC/FRP	33.000	75	1	chemical process	
262	Stadtwerke Münster, Münster, Germany	1989	PVC	honeycomb tube bundle	rubber lined steel	237.000	51	4	power station	95,0%
263	Wacker Chemie, Burghausen, Germany	1989	PVC-C	honeycomb tube bundle	PVC/FRP	21.000	60	1	incinerator for special waste	98,0%
264	ZCCM, Zambia	1989	PVC		steel, Flakeline	114.000	30	4	copper converter	99,7 %
265	RECHEM, Southampton, England	1989	PVC-C	honeycomb tube bundle	PVC/FRP	44.000	30	2	incineration plant for chemical waste	99,2 %
266	Norddeutsche Affinerie, Hamburg, Germany	1989	PVC		PVC/FRP	50.000	60	1	copper concentrate drying kiln	90,0%
267	Voest Alpine Linz - Austria	1989	St	honeycomb bundle		50.000		2	Detairer	99,8%
268	Didier Engineering Essen for Hoogovens / NL	1989	St	honeycomb bundle		57.800		2	Detairer	99,9%
269	Otto Simon Carves GB for Simbabwe	1989	St	honeycomb bundle		12.500		3	Detairer	99,5%
270	AVA Velsen, Saarbrücken, Germany	1990	PVC-C	honeycomb tube bundle	rubber lined steel	8.000	78	1	sludge incineration	80,0%
271	Rhone Poulenc, France, for Pont de Claix	1990	PVC-C	honeycomb tube bundle	rubber lined steel	49.000	66	2	incinerator for chemical waste	97,0%

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272	OTES AG, CSFR for Pterovske Chemické Zavody	1990	PVC-C		PVC/FRP	41.000	73	2	calcining for TiO <sub>2</sub> -production	99,5%
273	SERETE Industries Ltd., for Tiioxide, Malaysia	1990	PVC/FRP	honeycomb tube bundle	PVC/FRP	23.000	73	1+1 standby	calcining for TiO <sub>2</sub> -production	97,0%
274	Cyprus Mines, Miami, Arizona, USA	1990	PVC	honeycomb tube bundle	PVC/FRP	192.000	40	2	copper plant off-gas	93,0%
275	CHEMETICS for ICI, Billingham, England	1990	PVC-C	honeycomb tube bundle	PVC/FRP	77.000	31	2	sulfuric acid recovery plant	99,75 %
276	KVA Gamsen, Switzerland	1990	PVC-C	honeycomb tube bundle	rubber lined steel	46.000	73	1	incineration of municipal waste	90,0%
277	Röhm GmbH, Worms, Germany	1990	PVC-C	honeycomb tube bundle	lead coated steel	114.000	82	3	acid decomposition	99,0%
278	PASMINCO Metals EZ, Risdom, Tasmania	1990	PVC		FRP	95.000	40	4	zinc blende roaster	99,0%
279	INCO Ltd. Copper Cliff, Canada	1990				41.000		2		
280	Kwangyang IV Korea	1990	St	honeycomb bundle		50.000		2	Detarrer	99,5%
281	Ruhrkohle AG; Coke oven plant Kaiserstuhl Dortmund	1990	St	honeycomb bundle		47.000		3	Detarrer	99,9%
282	Compania Minera Disputada de las Condes, Santiago, Chile	1991	PVC		steel FRP lined	2 x 40.000	45	2	flash furnace	99,0%
283	Sandoz, Barcelona, Spain	1991	PVC-C	honeycomb tube bundle	rubber lined steel	4.000	88	1	special waste incinerator	98,0%
284	N.V. Sadaci, Gent, Belgium	1991	PVC-C		PVC/FRP	40.000	40	1	roaster for molybdenum	93,0%
285	ENAMI, Vina del Mar, Chile	1991	PVC		steel FRP lined	50.000	40	1	Cu smelter	93,0%
286	Von Roll AG, Surssee, Switzerland, for AHKW Augsburg, Germany	1991	PVC	honeycomb tube bundle	steel FRP lined	180.000	80	3	incineration of municipal waste	99,0%

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No.	Customer	Year	Material of tubes	Type of Collecting Electrodes	Material Casing	Gas Volume (m <sup>3</sup> /h(m))	Temp. [C]	Quantity	Application	Efficiency or Gas Condition
287	INCO Ltd. Copper Cliff, Canada	1991				44.000		2		
288	BCCW PR China	1991	St	honeycomb bundle		54.000		2	Detarrer	99,8%
289	Steinmüller/Lurgi for Hamburg Waste Incineration Plant	1991	PVC	honeycomb bundle		190.000		2	Cleaning of exhaust air coming from a waste incineration plant	88,4%
290	Newmont Gold Comp., Denver, USA	1992	PVC	honeycomb tube bundle	PVC/FRP	40.000	40	2	gold pyrite roaster	99,0%
291	Compania Minera Disputada de las Condes, Chagres, Chile	1992	PVC	honeycomb tube bundle	steel FRP lined	2 x 38,000	40	4	Cu smelter	99,0%
292	AEM-Azienda Elettrica Municipitale, Turin, Italy	1992	PVC-C	honeycomb tube bundle	rubber lined steel	65.000	52	1	incineration of municipal waste	90,0%
293	Padaeagn Industry Co., Ltd., Thailand	1992	PVC	honeycomb tube bundle	PVC/FRP	42.000	40	2	zinc blende roaster	99,0%
294	Metaleurop Weser IZink GmbH, Nordenham, Germany	1992	PVC	honeycomb tube bundle	PVC/FRP	2 x 43,000	40	2	zinc blende roaster	99,0%
295	MAN-GHH Oberhausen, for Bayer Dormagen, Germany	1992	PVC-C	honeycomb tube bundle	rubber lined steel	46.000	70	2	special waste incineration	95,0%
296	TIBRAS, Salvador, Bahia, Brazil	1992	PVC-C	honeycomb tube bundle	PVC/FRP	45.000	75	2	TiO <sub>2</sub> -Kiln	99,0%
297	Steinmüller/Lurgi for Hamburg Waste Incineration Plant	1992		W PVC		190.000		2	Cleaning of exhaust air coming from a waste incineration plant	88,4%
298	Compania Minera Disputada de las Condes, Santiago, Chile	1993	PVC	honeycomb tube bundle	steel / Flakeline	150.000	40	8	flash furnace + P.S. converter	99,0%
299	Outokumpu Harjavalta Metals Oy, Harjavalta, Finland	1994	PVC	honeycomb tube bundle	steel, homogeneously lead lined	134.000	45	5	Cu smelter	99,5 %
300	BAYER AG, Leverkusen, Germany	1994	PP	honeycomb tube bundle	PVC/FRP	15.000	40	1	sulfuric acid recovery plant	99,0%
301	Buna AG, Buna, Germany	1994	PP	honeycomb tube bundle	steel, rubber lined	26.000	80	1	incineration of chemical waste	96,0%

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No.	Customer	Year	Material of tubes	Type of Collecting Electrodes	Material Casing	Gas Volume (m <sup>3</sup> /h(m))	Temp. [C]	Quantity	Application	Efficiency or Gas Condition
302	BAYER AG, Leverkusen, Germany	1994	PVC	honeycomb tube bundle	steel, rubber lined	40.000	75	1	incineration of chemical waste	96.7 %
303	Rio Tinto Minera S.A., Huelva, Spain	1994	PP	honeycomb tube bundle	PVC/FRP	40.000	55	2	Cu smelter	99.4 %
304	Codelco, Chuquicamata, Chile	1995	PVC	honeycomb tube bundle	steel, resin coated	95.000	50	3	Cu smelter	98.6 %
305	BAYER AG, Leverkusen, Germany	1995	PVC	honeycomb tube bundle	steel rubber lined	10.000	9	2	incineration of chemical waste	99.9%
306	BASF AG, Ludwigshafen, Germany	1995	PVC	honeycomb tube bundle	PVC/FRP	35.000	50	2	sulfuric acid recovery plant	99.8 %
307	Glogow Copper, Zukowice, Poland	1995	PVC	honeycomb tube bundle	PVC/FRP	45.000	40	2	Cu smelter	99.1 %
308	ENAMI, Paipote, Chile	1995	PVC	honeycomb tube bundle	steel FRP lined	75.000	40	2	Cu smelter	99,0%
309	Codelco, El Teniente, Chile	1995	PVC	honeycomb tube bundle	steel FRP lined	164.000	38	6	Cu smelter	99.6 %
310	Krupp Koppers Coke Oven Plant Magnitogorsk	1995	St	honeycomb bundle	steel	54.500		6	Detarrer	99,9%
311	Large corporation / chemical industry	1995	PVC	honeycomb bundle	steel FRP lined	11.700		1	Cleaning of wet chloric gas	99,0%
312	KNPC, Kuwait	1996	PVC	compact tube bundle	PVC/FRP	8.000	45	1	acid decomposition plant	99.3 %
313	INDO Gulf, Bombay, India	1996	PP	compact tube bundle	PVC/FRP	132.000	40	5	Cu smelter	99.5 %
314	PCK, Schwedt, Germany	1996	PP	compact tube bundle	PVC/FRP	535.000	54	2	Wet ESP downstream of Quench	90,0%
315	FAVA LONZA, Switzerland	1996	PP	compact tube bundle	steel rubber lined	22.000	64		chemical waste incineration	98.75 %
316	MOLYMEX, Mexico	1996	PVC	compact tube bundle	steel, rubber lined	20.000	50	1	Mo roaster	99.35 %

## Wet Electrostatic Precipitator

**ENVIROTHERM**

No.	Customer	Year	Material of tubes	Type of Collecting Electrodes	Material Casing	Gas Volume {m <sup>3</sup> /h(m)}	Temp. [C]	Quantity	Application	Efficiency or Gas Condition
317	Thai Copper Ind., DAVY Int., Thailand	1996	PP	compact tube bundle	PVC/FRP	149.000	45	4	Cu smelter	99,6 %
318	GRESIK/MHI, Indonesia	1996	PVC	compact tube bundle	St. FRP lined	140.000	47	6	Cu smelter	99,9%
319	Chemical Works, Police, Poland	1996	PP	compact tube bundle	PVC/FRP	14.000	75	1	TiO2-kiln	98,5 %
320	LG Metal, South Korea	1996	PVC	compact tube bundle	PVC/FRP	117.000	41	4	Cu smelter	99,9%
321	Atlantic Copper S.A., Spain	1996	PP	compact tube bundle	PVC/FRP	81.000	40	2	Cu smelter	99,56 %
322	Bayer-Dormagen	1996	St	honeycomb bundle		4.500		1	CO-Gas	95,0%
323	PEC for Coke Oven Plant Tianjin PR China	1996	St	honeycomb bundle		53.000		2	Detarrer	99,7%
324	Merucus Co.Ltd., Glogow, Poland	1997	PVC	compact tube bundle	PVC/FRP	45.000	40	2	Cu smelter	99,1 %
325	WMC Olympic Dam, Australia	1997	PP	compact tube bundle	FRP	99.000	75	3	Cu smelter	90,0%
326	Röhm AG, Worms, Germany	1997	PP	compact tube bundle	PVC/FRP	70.000	30	1	acid decompo- sition plant	95,0%
327	WMC Olympic Dam, Monsanto, Australia	1997	PP	compact tube bundle	FRP	116.000	40	6	Cu smelter	99,67 %
328	Mercus Co.Ltd., Legnica, Poland	1997	PP	compact tube bundle	PVC/FRP	69.000	40	4	Cu smelter	99,5 %
329	Sun Metal, Australia	1997	PP	compact tube bundle	PVC/FRP	106.000	38	4	Zn smelter	99,0%
330	WMC Fertilizer, Australia	1997	PP	compact tube bundle	PVC/FRP	380.000	40	8	Cu smelter	99,0%
331	Codelco El Salvador, Chile	1997	PVC	compact tube bundle	steel, FRP lined	200.000	24	8	Cu smelter	99,5 %

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**ENVIROTHERM**

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333	Trinecke Zelezarny, AS	1997	St	honeycomb bundle	steel	45.000		2	Detarrer	98,8%
334	Evonik-Steag, Refinery Leuna; Leuna, Germany	1998	PVC-C	honeycomb bundle	steel, FRP lined	551.070	60	3	Wet ESP downstream of Quench	97,5%
335	Refineria de Cajamarquilla, Peru	1998	PP	compact tube bundle	steel, FRP lined	67.000	39	2	Zn roaster	99,2%
336	Chengde Coke Oven Plant PR China	1998	St	honeycomb bundle	steel	60.200	21	2	Detarrer incl. H <sub>2</sub> S-Incinerator	99,9%
337	Hefei Coke Oven Plant PR China	2000	St	honeycomb bundle	steel	36.400	21	2	Detarrer	99,9%
338	Nirma, Soda Plant India	2000	St	honeycomb bundle	steel, rubber lined	72.000	35	2	Wet ESP for Dedusting	95,0%
339	Oxon, Milano; Boiler Plant Italia	2001	PPs	honeycomb bundle	steel, rubber lined	3.540	50	1	Wet ESP downstream of Scrubber	95,0%
340	STEAG, AE+E for Refinery Shell Köln-Godorf, Germany	2003	PPs	compact tube bundle	steel, FRP lined	540.000	57	2	Wet ESP downstream of Quench	97,9%
341	Gemeindeverband für Abfallentsorgung Graubünden, Schweiz	2004	PPs	compact tube bundle	FRP	63.900	59	1	Wet ESP downstream of Scrubber	90,8%
342	Tata Steel (ex Corus); Ijmuiden Niederlande	2004	PPs	compact tube bundle	rubber lined steel	11.000		1	Separation of sulphuric acid	99,9%
343	Eisenmann for Kambarka, Russia	2005	Cr St	compact tube bundle	FRP	11.000	50	1	Wet ESP downstream of Scrubber	96,7%
344	Eisenmann for Kambarka, Russia	2005	Cr St	compact tube bundle	FRP	11.000	50	1	Wet ESP downstream of Scrubber	96,7%
343	Tatasteel (ex Corus); Ijmuiden Niederlande	2005	St	honeycomb bundle	steel	45.000	30	1	Detarrer	99,5%
344	Isdemir, Iskenderun, Turkey	2006	St	honeycomb bundle	steel	155.000	32	8	Detarrer	99,9%
345	Tatasteel (Ex Corus); Ijmuiden Niederlande	2006	St	honeycomb bundle	steel	45.000	30	1	Detarrer	99,5%



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346	Potschep, Russia	2007	Cr St	compact tube bundle	GFK	15.700	60	1	Wet ESP downstream of Scrubber	99,7%
347	Eisenmann for Potschep, Russia	2007	Cr St	compact tube bundle	GFK	26.300	81	1	Wet ESP downstream of Scrubber	99,4%
348	Rauschert for BASF, Ludwigshafen, Germany	2008	St	honeycomb bundle	steel	16.300	70	1	Wet ESP downstream of Scrubber	98,5%
349	AMR for RAG Coke oven plant Prosper; Bottrop, Germany	2008	St	honeycomb bundle	steel	45.300	24	1	Detarrer	99,9%
350	Rauschert for GEVAG Trimmis, Switzerland	2009	PPs	compact tube bundle	FRP	63.900	59	1	Wet ESP downstream of Scrubber	90,8%
351	Bayer, Shanghai, PR China	2010	PPs	compact tube bundle	FRP	34.600	64	1	Wet ESP downstream of Scrubber	91,7%
352	CPPE, Tioxide, South Africa	2011	PPs	compact tube bundle	FRP	25.000	71	1	Wet ESP downstream of Scrubber	99,1%
353	Kardemir, Karabük, Turkey	2012	St	honeycomb bundle	steel	20.000	43	5	Detarrer	99,2%
354	Tata Steel (ex Corus) KoFa 1; Ijmuiden, The Netherlands	2014	St	honeycomb bundle	steel	55.000	27	2	Detarrer	99,8%
355	DATANG, Wu Sha Shan Unit 4 (600 MW <sub>el</sub> ), PR China (Nanjing General Electric Equipment = NGE)	2014	FRP	tube bundle	steel / flakeline	2.900.000 total gas volume flow	55	3	Wet ESP downstream of FGD Scrubber	91,0%
356	SHAANXI Weihe Power Generating Co. Ltd., Wei He Units 5 & 6 (2x300 MW <sub>el</sub> ), Shanxi, PR China (Nanjing General Electric Equipment = NGE)	2014	PPs	tube bundle	steel / flakeline	1.500.000	51	2	Wet ESP downstream of FGD Scrubber	90,0%
357	HUADIAN Ningxia Lingwu Power Generation Co., Ltd., Ling Wu (600 MW <sub>el</sub> ), PR China (Nanjing General Electric Equipment = NGE)	2014	stainless steel	honeycomb	steel / flakeline	2.800.000 total gas volume flow	50	2	Wet ESP downstream of FGD Scrubber	92,0%
358	HENG SHUI, Hengxing units 3 & 4 (2x300MW <sub>el</sub> ), Heibei, PR China (Dongfang Boiler Group, DBC)	2014	PPs	compact tube bundle	steel / flakeline	1.200.000	52	2	Wet ESP downstream of FGD Scrubber	83,3%

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359	Xuzhou Huamei Thermal Power Phase II (2x350MW <sub>el</sub> ), Supercritical CFB Boiler; PR China (Dongfang Boiler Group, DBC)	2015	PPs	compact tube bundle	steel / flakelime	1.260.000	48	2	Wet ESP downstream of FGD Scrubber	88,0%
360	Qinhuangdao Qinre Power Generation Co., Ltd., Retrofitting of #5 and #6 Units, (2x300MW <sub>el</sub> ), PR China (DBC)	2015	PPs	compact tube bundle	steel / flakelime	1.320.000	40	2	Wet ESP downstream of FGD Seawater Scrubber	80,0%
361	Shahe (1x600 MW <sub>el</sub> ), PR China (Nanjing General Electric Equipment = NGE)	2015	FRP (electrically conductive)	honeycomb Bundle	Steel+FRP	2.980.000	49	1	Wet ESP downstream of FGD Scrubber	80,0%
362	Adsoi-Tech GmbH, Premnitz, Germany	2015	PVC-C	compact tube bundle	PVC-C/FRP	21.000	70	1	Wet ESP downstream of hydrogen peroxide scrubber (PeracidoX)	99,8%
363	XUTANG, (1x300 MW <sub>el</sub> ), Retrofitting of # 7 Unit of Jiangsu Xutang Power Generation Co., Ltd, PR China (Dongfang Boiler Group, DBC)	2016	PPs	compact tube bundle	steel / flakelime	1.200.000	52	1	Wet ESP downstream of FGD Scrubber	83,3%
364	WESP for Shandong Hongqiao New Material Co., Ltd. (2x660MW <sub>el</sub> ), PR China (Dongfang Boiler Group, DBC)	2016	FRP	tube bundle	steel / flakelime	2.345.000	50	2	Wet ESP downstream of FGD Scrubber	85,0%
365	WESP for Huihong New Material Co., Ltd. (2x300MW <sub>el</sub> ), PR China (Dongfang Boiler Group, DBC)	2016	FRP	tube bundle	steel / flakelime	1.267.020	50	2	Wet ESP downstream of FGD Scrubber	83,5%
366	WESP for Xixia Thermal Electricity (2x350MW <sub>el</sub> ), PR China	2017	PPs	tube bundle	steel / flakelime	1.314.000	49	2	Wet ESP downstream of FGD Scrubber	80,0%
367	(Jiaxing Huaneng Environmental Protection Verifia Coke Oven Battery Plant Gijon; ArcelorMittal España, S.A.; Gijón - Asturias, Spain	2017	St	honeycomb bundle	steel	60.000	22	2	Detarrer	99,95%