

Equipment	Process Medium	Cooling Medium	Duty [MW]			Average Flow Properties			Reason for Waste Heat
			Case 1	Case 2	Case 3	Tin [°C]	Tout [°C]	Flow [kg/h]	
11EC-01A	Heat Treated Feedstock	Air	5,863	5,863	5,863	183,2	100,0	159139,0	No nearby user to connect to. Also see MB15 Energiestudie, section 3.5
11EC-01B	Heat Treated Feedstock	Air	5,863	5,863	5,863	100,0	69,0	159139,0	Low temperature, very hard to reuse realistically
11EA-06/S	Off Gases	Cooling Water	0,418	0,418	0,418	280,0	40,0	642,0	Small stream & potential
11EA-07/S	Off Gases	Cooling Water	2,056	2,056	2,056	92,9	40,0	3045,0	No nearby user to connect to
12EA-04	Pretreated Feedstock	Cooling Water	4,075	4,075	4,075	105,2	60,0	154196,0	Low temperature, very hard to reuse realistically
12EA-06/S	Wastewater	Cooling Water	6,698	6,698	6,698	78,3	50,0	200000,0	Low temperature, very hard to reuse realistically
12EA-05	Vacuum Vapors	Cooling Water	2,21	2,21	2,21	91,1	36,0	3174,8	Low temperature, very hard to reuse realistically
21EC-02	Hydrocarbons	Air	16,637	15,916	17,253	161,2	55,0	120709,0	Heat integration present upstream this EC. Further reuse not realistic. Also see MB15 Energiestudie, section 3.4
21EA-03	Hydrocarbons	Cooling Water	1,571	1,46	1,819	55,0	40,0	120709,0	Low temperature, very hard to reuse realistically
21EA-95	Hydrogen, Shutdown only	Cooling Water	5,893	5,893	5,893	137,0	40,0	15000,0	Intermittent use, not realistic to reuse
21EC-03	Hydrocarbons	Air	3,142	2,577	2,976	139,2	55,0	28097,0	No potential user for this temperature level. Also see MB15 Energiestudie, section 3.3
21EC-06	Hydrocarbons	Air	8,032	1,875	5,652	97,7	55,0	72807,0	Low temperature, very hard to reuse realistically
21EA-07	Hydrocarbons	Cooling Water	0,902	0,216	0,405	55,0	40,0	72807,0	Low temperature, very hard to reuse realistically
21EC-12	RJF Product	Air	4,622	0	1,153	168,0	55,0	60848,0	Steam generation before EC present. Further reuse not realistic.
21EA-101A/B	RJF Product	Cooling Water	0,719	0	0	55,0	35,0	60731,0	Low temperature, very hard to reuse realistically
21EC-05	Diesel Product	Air	3,538	8,354	7,005	155,9	55,0	93558,0	Steam generation before EC present. Further reuse not realistic.
21EA-10	Diesel Product	Cooling Water	0,459	0,985	0,866	55,0	41,1	93558,0	Low temperature, very hard to reuse realistically
21EA-33	Hydrocarbons	Cooling Water	0,595	0,416	0,414	49,3	41,0	5516,3	Low temperature, very hard to reuse realistically
21EA-69	Biopropane	Cooling Water	0,071	0,024	0,02	60,6	40,0	2419,0	Low temperature, very hard to reuse realistically
21EA-08	Naphtha Product	Cooling Water	0,097	0,104	0,125	142,2	40,0	1634,7	Heat integration present upstream this EA. Further reuse not realistic.
21EA-123	Hydrocarbons	Cooling Water	0,168	0,159	0,162	106,7	40,0	3069,0	Intermittent use, not realistic to reuse
21EA-125	Hydrocarbons	Cooling Water	0,075	0,076	0,077	71,7	39,8	3069,0	Low temperature, very hard to reuse realistically
21EA-122	Hydrocarbons	Cooling Water	0,215	0,205	0,209	76,2	40,0	4356,0	Low temperature, very hard to reuse realistically
21EC-04	Hydrocarbons	Air	1,525	1,312	2,137	83,5	55,0	19750,8	Low temperature, very hard to reuse realistically
21EA-13	Hydrocarbons	Cooling Water	0,74	0,67	0,741	54,7	40,0	23958,2	Low temperature, very hard to reuse realistically
21EC-07	Sour Gas	Air	2,301	2,301	2,301	101,6	55,0	9161,0	Low temperature, very hard to reuse realistically
21EA-17	Sour Gas	Cooling Water	0,161	0,161	0,161	55,0	40,0	9161,0	Low temperature, very hard to reuse realistically
21EC-08	Amine	Air	5,17	5,17	5,17	87,6	55,0	153007,0	Low temperature, very hard to reuse realistically
21EA-16	Amine	Cooling Water	0,627	0,627	0,627	55,0	51,0	153007,0	Low temperature, very hard to reuse realistically
21EC-10	H2S Rich Gas	Air	0,907	0,907	0,907	110,0	55,0	1621,0	Low temperature, very hard to reuse realistically
21EA-34	H2S Rich Gas	Cooling Water	0,0294	0,0294	0,0294	55,0	40,0	1621,0	Low temperature, very hard to reuse realistically
21EA-23	Sour Gas	Cooling Water	1,155	1,155	1,155	154,5	48,3	2251,0	Integrated overhead condenser for the column, reuse not realistic
21EA-105	Ammonia Gas	Cooling Water	5,394	5,394	5,394	125,7	78,5	8673,0	Integrated overhead condenser for the column, reuse not realistic
21EA-24/S	Stripped Water	Cooling Water	1,438	1,438	1,438	70,0	40,0	41560,0	Low temperature, very hard to reuse realistically
21EA-107/S	Scrubber Waste Water	Cooling Water	0,034	0,034	0,034	50,0	40,0	2940,0	Low temperature, very hard to reuse realistically
21EA-108/S	Ammonia Water	Cooling Water	0,104	0,104	0,104	50,0	40,0	8553,0	Low temperature, very hard to reuse realistically
21EA-63	Biopropane Gas	Cooling Water	0,229	0,242	0,286	96,8	63,0	10469,7	Low temperature, very hard to reuse realistically
21EA-62	Hydrogen	Cooling Water	0,5	0,391	0,318	61,2	40,0	10459,0	Low temperature, very hard to reuse realistically
21EA-56	Biopropane Product	Cooling Water	0,38	0,373	0,373	86,3	40,0	7549,0	Low temperature, very hard to reuse realistically
53EA-01	Vent Steam Condensing	Cooling Water	0,46	0,46	0,46	127,6	126,3	760,0	Low temperature, very hard to reuse realistically
53EA-03	Vent Steam Condensing	Cooling Water	1,99	1,99	1,99	110,0	107,8	1960,0	Low temperature, very hard to reuse realistically
57EA-04	Hot Oil	Cooling Water	0,3096	0,3096	0,3096	380,0	334,0	9760,0	Intermittent use, not realistic to reuse
62EA-01/S	Wastewater	Cooling Water	0,771	0,771	0,771	42,2	30,0	46263,0	Low temperature, very hard to reuse realistically