

**Monthly Performance Report
(HWT-NG100-MPR-46-R0)**

**May 2020
(From 01/05/2020 to 31/05/2020)**

**100 TPD Municipal Solid Waste (MSW) Facility
Calangute, North Goa**

Prepared By
**Hindustan Waste Treatment Pvt. Ltd.
(HWT)**

Submitted To
**Goa Waste Management Corporation (GWMC)
Department of Science & Technology (DS&T)**

Table – 1
Summary of Overall Average Results for May 2020
(As compared to Schedule – 7: Performance Standards, Volume – I of RFP)

Sr. No.	Parameter	Performance Standard As per Schedule – 7	Actual Performance at Plant (Monthly Average)
1.	Number of fractions of recyclables sorted per day from the input mixed waste	Minimum 10 numbers of fractions shall be sorted daily from the input dry waste as received in the facility. The list of fractions are as follows: 1. PET Bottles 2. Mixed Plastic Articles 3. Newspapers / other Paper Material 4. Cardboard 5. Styrofoam & Thermocol 6. Coconut Shells 7. Clothes 8. Rubber Articles 9. Metal Articles & Cans 10. E-waste Articles and any Hazardous Waste	13 numbers of fractions are being sorted daily from the input dry waste as received in the facility. The list of fractions are as follows: 1. Glass 2. Aluminium 3. Metal 4. Paper + Cardboard 5. Tetra Pack 6. Hard Plastic 7. PET 8. Mixed Plastic 9. Styrofoam + Thermocol 10. Cloth + Rags + Textile 11. Leather + Rexine + Rubber 12. Coconut Shells 13. E-waste Articles and any Hazardous Waste
2.	Quantum of reject/residues to be sent to the landfill after processing. No organic fraction shall be disposed in the landfill.	Maximum 10% of inert of the total input waste as received in the facility (in TPD).	Input waste to the Plant is 88.95 TPD . Quantum of Inert is 0.34 TPD which is < 10% of the Total Input Waste as received in the Facility. No Organic Waste has been disposed in the Sanitary Landfill Facility.
3.	Electricity generation in the Plant	Minimum electricity to be generated in the plant shall be 0.40 MW per 100 tons of input wet biodegradable waste as received in the Facility (in TPD).	Electricity generation is 0.49 MW/100 MT of Input Biodegradable Waste as received in the Facility (in TPD).
4.	Biogas Flaring System	The Biogas Flaring System shall strictly be used only in case of	Biogas is being flared strictly, only under emergency and not as a

Sr. No.	Parameter	Performance Standard As per Schedule – 7	Actual Performance at Plant (Monthly Average)										
		emergency and not as a routine practice.	routine practice. The average running time of Biogas Flaring System is 0.00 hours/day .										
5.	Discharge of treated effluent conforming to regulatory norms	Effluent Treatment Plant shall be operated under all conditions.	Effluent Treatment Plant is being operated continuously and is meeting all statutory conditions. The Treated Effluent Characteristics are as follows: <table border="1" data-bbox="1032 646 1403 856"> <tbody> <tr> <td>pH</td> <td>6.97</td> </tr> <tr> <td>BOD</td> <td>7 mg/l</td> </tr> <tr> <td>COD</td> <td>70 mg/l</td> </tr> <tr> <td>TSS</td> <td>8 mg/l</td> </tr> <tr> <td>TDS</td> <td>1,667 mg/l</td> </tr> </tbody> </table>	pH	6.97	BOD	7 mg/l	COD	70 mg/l	TSS	8 mg/l	TDS	1,667 mg/l
pH	6.97												
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TDS	1,667 mg/l												
6.	General Housekeeping, hygienic conditions, cleanliness, safety norms, adequate manpower, treatment methodology for plant operation & maintenance and storage conditions in the plant.	Minimum housekeeping, safety norms and cleanliness conditions shall be maintained at all times as per the Bid Document requirement.	<ul style="list-style-type: none"> • High standard of Housekeeping, Cleanliness and Safety are being maintained at all times at the Plant. • Adequate manpower has been deployed in all shifts. • Also, the treatment methodology is being followed properly and proper storage conditions have been maintained in the Plant. 										

Table – 1: Summary of Average Results for May 2020

100 TPD Municipal Solid Waste (MSW) Facility at Calangute, North Goa

#	Plant Performance Data: May 2020		
Sr. No.	Content	Month	Signature
1	Input Waste Composition	From 01.05.2020 To 31.05.2020	
2	Recyclables		
3	Electricity Generation		
4	Biogas Flare		
5	Effluent Treatment Plant		
6	Inert		
7	Housekeeping		

100 TPD Municipal Solid Waste (MSW) Facility at Calangute, North Goa

1 WASTE:																								
Sr. No.	Description	Unit	1-May	2-May	3-May	4-May	5-May	6-May	7-May	Weekly Average 1-7	8-May	9-May	10-May	11-May	12-May	13-May	14-May	Weekly Average 8-14	15-May	16-May	17-May	18-May		
1.1 Input Waste:																								
1	Type 1: Dry Waste	TPD	46.88	54.93	43.08	53.15	55.22	52.64	54.83	51.53	59.23%	55.19	49.02	41.32	54.31	56.53	57.41	49.30	51.87	58.48%	57.74	50.33	46.67	52.17
2	Type 2: Wet Waste	TPD	41.03	31.87	36.18	31.71	28.30	33.48	30.48	33.29	38.27%	35.75	31.07	30.25	42.64	35.39	37.73	30.67	34.79	39.22%	42.39	34.85	36.37	34.46
3	Type 3: Mixed Waste	TPD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00
4	Type 4: Tree Waste	TPD	1.30	0.40	1.31	2.05	4.42	3.15	2.61	2.18	2.50%	4.85	1.33	3.44	0.63	1.84	0.76	1.44	2.04	2.30%	2.50	2.66	0.19	1.50
5	Total.....(1)+(2)+(3)+(4)	TPD	89.21	87.20	80.57	86.91	87.94	89.27	87.92	87.00	100.00%	95.79	81.42	75.01	97.58	93.76	95.90	81.41	88.70	100.00%	102.63	87.84	83.23	88.13

- # **Note:**
 1 **Type-I: Dry Waste:** This has 25-30% Organic and 70-75% Inorganic.
 2 **Type-II: Wet Waste:** This has 65-70% Organic and 30-35%
 3 **Type-I: Mixed Waste:** This has 45-50% Organic and 50-55% Inorganic.

Sr. No.	Description	Unit	1-May	2-May	3-May	4-May	5-May	6-May	7-May	Weekly Average 1-7	8-May	9-May	10-May	11-May	12-May	13-May	14-May	Weekly Average 8-14	15-May	16-May	17-May	18-May		
1.2 Output Products:																								
1	Organic Fraction	TPD	41.48	34.92	34.81	35.79	32.91	37.15	34.74	35.97	41.35%	38.54	35.57	32.04	45.31	39.65	42.55	34.26	38.27	43.15%	43.83	37.50	37.42	38.33
2	Inorganic Fraction:																							
	Recyclables	TPD	6.08	5.91	5.65	6.08	6.16	5.96	5.85	5.96	6.85%	6.81	6.12	5.38	6.84	6.60	7.16	5.59	6.36	7.17%	7.25	6.17	5.96	6.65
	RDF	TPD	39.03	42.83	37.78	41.81	41.30	41.83	43.39	41.14	47.28%	42.53	37.36	33.26	43.55	44.31	43.96	37.57	40.36	45.51%	47.90	40.42	38.64	40.43
	Bulking Material	TPD	1.32	1.19	1.02	1.19	1.36	1.18	1.33	1.23	1.41%	1.47	1.04	0.89	1.24	1.36	1.47	1.10	1.22	1.38%	1.15	1.09	1.02	1.21
	Inert	TPD	0.00	1.95	0.00	0.00	1.78	0.00	0.00	0.53	0.61%	1.59	0.00	0.00	0.00	0.00	0.00	1.45	0.43	0.49%	0.00	0.00	0.00	0.00
3	Tree Waste	TPD	1.30	0.40	1.31	2.05	4.42	3.15	2.61	2.18	2.50%	4.85	1.33	3.44	0.63	1.84	0.76	1.44	2.04	2.30%	2.50	2.66	0.19	1.50

2 RECYCLABLES:																						
Sr. No.	Description	Unit	1-May	2-May	3-May	4-May	5-May	6-May	7-May	Weekly Average 1-7	8-May	9-May	10-May	11-May	12-May	13-May	14-May	Weekly Average 8-14	15-May	16-May	17-May	18-May
1	Glass	Kg	105	87	119	119	92	103	119	106	91	112	107	145	101	133	80	110	120	128	108	95
2	Aluminum	Kg	53	43	71	51	58	52	51	54	45	40	72	68	46	48	64	55	90	77	50	87
3	Metal	Kg	141	139	135	136	167	129	136	140	155	128	136	175	156	143	160	150	170	128	158	130
4	Tetra Pack	Kg	88	43	71	76	84	69	43	68	73	40	43	97	64	67	64	64	100	85	83	61
5	Hard Plastic	Kg	149	165	79	85	150	112	102	120	173	120	93	145	129	133	96	127	190	85	133	165
6	PET	Kg	167	113	143	127	125	138	154	138	118	128	136	155	165	114	152	138	100	128	116	95
7	Mixed Plastic	Kg	5,301	5,251	4,978	5,406	5,437	5,279	5,170	5,260	6,111	5,510	4,738	6,001	5,855	6,431	4,934	5,654	6,418	5,452	5,232	5,951
8	Thermocol + Styrofoam	Kg	79	69	55	76	50	78	77	69	45	40	57	58	83	95	40	60	60	85	83	69
9	Cloth + Rags + Textiles	Kg	607	833	674	611	760	715	793	713	491	577	358	863	561	675	424	564	731	792	789	632
10	Leather + Rexine + Rubber	Kg	624	477	491	840	551	663	623	610	464	793	637	863	469	704	528	637	981	571	814	632
11	Paper + Cardboard	Kg	536	556	507	577	568	560	580	555	582	561	494	611	552	599	504	558	601	562	540	572
12	Coconut	Kg	782	634	515	611	793	620	751	672	891	481	394	630	809	866	592	666	551	528	482	641

- # **Note:**
 1 Item No. 9 (Cloth + Rags + Textiles) and 10 (Leather + Rexine + Rubber) are sent to Cement Plants as RDF.
 2 Item No. 11 (Paper + Cardboard) and 12 (Coconut) are used as Bulking Material in Composting.

3 DISPOSAL OF INERT:																						
Sr. No.	Description	Unit	1-May	2-May	3-May	4-May	5-May	6-May	7-May	Weekly Average 1-7	8-May	9-May	10-May	11-May	12-May	13-May	14-May	Weekly Average 8-14	15-May	16-May	17-May	18-May
1	As per Tender: Maximum 10% of Inerts of the Total Input Waste (excluding Mulched Tree Waste) as received in the Facility.																					
2	Input Waste	TPD	89.21	87.20	80.57	86.91	87.94	89.27	87.92	87.00	95.79	81.42	75.01	97.58	93.76	95.90	81.41	88.70	102.63	87.84	83.23	88.13
3	Inert Fraction	TPD	0.00	1.95	0.00	0.00	1.78	0.00	0.00	0.53	1.59	0.00	0.00	0.00	0.00	0.00	1.45	0.43	0.00	0.00	0.00	0.00
4	% of Total Input Waste.....(3) ÷ (2)	%	0.00%	2.24%	0.00%	0.00%	2.02%	0.00%	0.00%	0.61%	1.66%	0.00%	0.00%	0.00%	0.00%	0.00%	1.78%	0.49%	0.00%	0.00%	0.00%	0.00%

4 ELECTRICITY GENERATION:																						
Sr. No.	Description	Unit	1-May	2-May	3-May	4-May	5-May	6-May	7-May	Weekly Average 1-7	8-May	9-May	10-May	11-May	12-May	13-May	14-May	Weekly Average 8-14	15-May	16-May	17-May	18-May
3.1 Biogas Gensets:																						
1	Biogas Genset-I: Running Time	hr/day	15.45	22.85	19.10	6.70	22.90	23.20	17.60	18.26	11.20	10.85	8.10	17.05	14.10	23.95	16.25	14.50	17.10	23.95	23.80	12.75
2	Biogas Genset-I: Biogas Consumption	Nm ³ /day	1,343	1,839	1,363	574	1,712	1,834	1,480	1,449	826	967	612	1,483	1,264	2,067	1,218	1,205	1,513	1,837	1,857	909
3	Biogas Genset-I: Energy Generation	kW.hr/day	2,200	2,720	1,850	910	2,410	2,780	2,290	2,166	1,110	1,610	870	2,360	2,020	3,210	1,740	1,846	2,570	2,730	2,810	1,270
4	Biogas Genset-II: Running Time	hr/day	15.04	15.85	21.85	19.00	20.45	9.30	15.50	16.71	23.85	15.80	20.85	13.17	14.50	12.80	23.35	17.76	9.45	19.80	17.10	23.85
5	Biogas Genset-II: Biogas Consumption	Nm ³ /day	1,248	1,094	1,464	1,452	1,381	633	1,197	1,210	1,893	1,324	1,733	1,172	1,200	930	1,769	1,431	761	1,343	1,130	1,835
6	Biogas Genset-II: Energy Generation	kW.hr/day	2,010	1,620	2,140	2,420	2,020	920	1,980	1,873	3,140	2,310	3,000	1,910	2,050	1,380	2,830	2,374	1,340	2,040	1,700	3,140
7	Total Biogas Consumption = (2)+(5)	Nm³/day	2,591	2,933	2,827	2,025	3,093	2,467	2,677	2,659	2,719	2,291	2,345	2,655	2,464	2,997	2,987	2,637	2,273	3,180	2,988	2,744
8	Total Energy Generation = (3)+(6)	kW.hr/day	4,210	4,340	3,990	3,330	4,430	3,700	4,270	4,039	4,250	3,920	3,870	4,270	4,070	4,590	4,570	4,220	3,910	4,770	4,510	4,410

100 TPD Municipal Solid Waste (MSW) Facility at Calangute, North Goa

Sr. No.	Description	Unit	1-May	2-May	3-May	4-May	5-May	6-May	7-May	Weekly Average 1-7	8-May	9-May	10-May	11-May	12-May	13-May	14-May	Weekly Average 8-14	15-May	16-May	17-May	18-May
3.2 Electricity Generation:																						
1	As per Tender: Minimum electricity to be generated in the plant shall be 0.4 MW per 100 tons of Input Biodegradable Waste as received in the Facility.	MW/100 MT	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
2	Biodegradable Waste = 1.2.2	TPD	41.03	31.87	36.18	31.71	28.30	33.48	30.48	33.29	35.75	31.07	30.25	42.64	35.39	37.73	30.67	34.79	42.39	34.85	36.37	34.46
3	Guaranteed Electricity Generation = (3.2.2 x 3.2.1) ÷ 100	kW	0.16	0.13	0.14	0.13	0.11	0.13	0.12	0.13	0.14	0.12	0.12	0.17	0.14	0.15	0.12	0.14	0.17	0.14	0.15	0.14
4	Guaranteed Electricity Generation = 3.2.3 x 24 x 1000	kW.hr/day	3,939	3,060	3,473	3,044	2,717	3,214	2,926	3,196	3,432	2,983	2,904	4,093	3,397	3,622	2,944	3,339	4,069	3,346	3,492	3,308
5	Available Electricity Generation = (A2 ÷ 24) + (A4 ÷ 24)	kW	175	181	166	139	185	154	178	168	177	163	161	178	170	191	190	176	163	199	188	184
6	Available Electricity Generation = 3.2.5 ÷ 100	MW/100 MT	0.43	0.57	0.46	0.44	0.65	0.46	0.58	0.51	0.50	0.53	0.53	0.42	0.48	0.51	0.62	0.51	0.38	0.57	0.52	0.53

5 BIOGAS FLARE:																						
Sr. No.	Description	Unit	1-May	2-May	3-May	4-May	5-May	6-May	7-May	Weekly Average 1-7	8-May	9-May	10-May	11-May	12-May	13-May	14-May	Weekly Average 8-14	15-May	16-May	17-May	18-May
1	Operation Time	hr/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Biogas Flared	Nm ³ /day	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6 DIGESTERS:																						
Sr. No.	Description	Unit	1-May	2-May	3-May	4-May	5-May	6-May	7-May	Weekly Average 1-7	8-May	9-May	10-May	11-May	12-May	13-May	14-May	Weekly Average 8-14	15-May	16-May	17-May	18-May
5.1 Digester-I: Front End																						
1	pH	---	7.22	7.23		7.24	7.25	7.27	7.24	7.24	7.22	7.21		7.18	7.15	7.11	7.09	7.16	7.10	7.12		7.14
2	TSS	ppm	31,790	31,758		31,684	31,612	31,540	31,212	31,599	31,109	30,919		31,112	31,265	31,577	31,945	31,321	32,218	32,745		33,465
3	VSS	ppm	21,780	21,785		21,540	21,345	20,812	20,419	21,280	20,095	19,824		19,978	20,112	20,245	20,546	20,133	20,865	21,110		21,645
4	Total Alkalinity	ppm as CaCO ₃	7,950	7,950		7,975	7,975	8,000	8,025	7,979	8,050	8,125		7,975	7,725	7,550	7,425	7,808	7,400	7,350		7,300
5	VFA	ppm as HAC	1,585	1,585		1,585	1,585	1,502	1,502	1,557	1,502	1,419		1,419	1,502	1,585	1,585	1,502	1,502	1,502		1,585
5.2 Digester-I: Back End																						
1	pH	---	7.24	7.23		7.26	7.27	7.29	7.27	7.26	7.24	7.23		7.19	7.16	7.13	7.10	7.18	7.11	7.13		7.15
2	TSS	ppm	31,781	31,546		31,651	31,602	31,531	31,198	31,552	31,092	30,912		31,012	31,185	31,498	31,823	31,254	32,128	32,623		33,401
3	VSS	ppm	21,778	21,546		21,533	21,335	20,803	20,402	21,233	20,064	19,760		19,945	20,025	20,213	20,531	20,090	20,836	21,095		21,615
4	Total Alkalinity	ppm as CaCO ₃	7,975	7,950		8,000	8,000	8,050	8,050	8,004	8,075	8,175		8,050	7,825	7,625	7,500	7,875	7,475	7,425		7,375
5	VFA	ppm as HAC	1,502	1,502		1,502	1,502	1,419	1,419	1,474	1,419	1,336		1,336	1,419	1,502	1,502	1,419	1,419	1,419		1,502
5.3 Buffer Tank: Front End																						
1	pH	---	7.32	7.33		7.33	7.32	7.31	7.32	7.32	7.31	7.31		7.28	7.26	7.25	7.22	7.27	7.23	7.24		7.24
2	TSS	ppm	27,135	27,120		26,945	26,863	26,849	26,802	26,952	26,784	26,728		26,840	26,992	27,103	27,213	26,943	27,385	27,445		27,712
3	VSS	ppm	18,840	18,751		18,698	18,412	18,245	17,985	18,489	17,465	17,071		17,112	17,125	17,156	17,198	17,188	17,225	17,246		17,246
4	Total Alkalinity	ppm as CaCO ₃	8,625	8,650		8,525	8,475	8,425	8,525	8,538	8,575	8,625		8,600	8,575	8,550	8,525	8,575	8,500	8,450		8,400
5	VFA	ppm as HAC	1,004	1,004		1,004	1,004	1,087	1,087	1,032	1,087	1,004		1,004	1,004	1,087	1,087	1,046	1,087	1,087		1,004
5.4 Buffer Tank: Back End																						
1	pH	---	7.34	7.31		7.35	7.33	7.32	7.34	7.33	7.33	7.32		7.29	7.27	7.26	7.23	7.28	7.24	7.25		7.25
2	TSS	ppm	27,120	26,541		26,843	26,631	26,793	26,785	26,786	26,538	26,384		26,811	26,958	26,885	27,185	26,794	27,345	27,412		26,988
3	VSS	ppm	18,762	18,632		18,602	18,368	18,163	17,832	18,393	17,322	16,304		16,992	17,116	17,145	17,168	17,008	17,203	17,235		17,235
4	Total Alkalinity	ppm as CaCO ₃	8,650	8,650		8,550	8,500	8,450	8,550	8,558	8,600	8,675		8,625	8,600	8,575	8,600	8,613	8,500	8,475		8,400
5	VFA	ppm as HAC	1,004	1,004		1,004	1,004	1,087	1,087	1,032	1,087	1,004		1,004	1,004	1,004	1,087	1,032	1,087	1,087		1,004
5.5 Digester-II: Front End																						
1	pH	---	7.17	7.17		7.19	7.20	7.21	7.19	7.19	7.17	7.15		7.11	7.09	7.06	7.05	7.11	7.06	7.07		7.09
2	TSS	ppm	31,898	31,860		31,654	31,412	31,105	30,916	31,474	30,759	30,622		30,935	31,115	31,264	31,498	31,032	31,960	32,540		33,305
3	VSS	ppm	21,924	21,720		21,423	21,145	20,978	20,845	21,339	20,568	20,388		20,564	20,863	21,126	21,439	20,825	21,731	21,956		22,315
4	Total Alkalinity	ppm as CaCO ₃	7,500	7,550		7,675	7,700	7,800	8,050	7,713	8,125	8,200		7,750	7,525	7,375	7,275	7,708	7,250	7,250		7,175
5	VFA	ppm as HAC	1,502	1,419		1,502	1,502	1,585	1,502	1,502	1,419	1,502		1,502	1,502	1,502	1,585	1,502	1,585	1,585		1,585
5.6 Digester-II: Back End																						
1	pH	---	7.20	7.18		7.20	7.22	7.24	7.22	7.21	7.20	7.18		7.13	7.11	7.09	7.07	7.13	7.07	7.10		7.12
2	TSS	ppm	31,710	31,524		31,578	31,126	30,849	30,513	31,217	30,327	30,105		30,898	31,098	31,223	31,452	30,851	31,925	32,512		33,275
3	VSS	ppm	21,612	21,569		21,395	21,003	20,698	20,512	21,132	20,013	19,695		20,511	20,834	21,094	21,412	20,593	21,702	21,912		22,292
4	Total Alkalinity	ppm as CaCO ₃	7,525	7,600		7,700	7,775	7,875	8,125	7,767	8,200	8,300		7,875	7,650	7,525	7,400	7,825	7,375	7,350		7,275
5	VFA	ppm as HAC	1,419	1,419		1,419	1,502	1,419	1,419	1,433	1,419	1,419		1,419	1,419	1,419	1,508	1,434	1,585	1,585		1,502

7 EFFLUENT TREATMENT PLANT:																						
Sr. No.	Description	Unit	1-May	2-May	3-May	4-May	5-May	6-May	7-May	Weekly Average 1-7	8-May	9-May	10-May	11-May	12-May	13-May	14-May	Weekly Average 8-14	15-May	16-May	17-May	18-May
6.1 Raw Effluent Quality:																						
1	Flow	m ³ /day	67.12	54.64		42.55	40.63	63.09	58.44	54.41	49.89	51.62		68.49	25.93	53.00	53.45	50.40	37.51	49.69		61.40
2	pH	---	7.06	7.43		7.65	6.42	6.32	7.64	7.09	7.74	7.41		7.45	6.97	7.21	6.52	7.22	7.66	6.82		6.30
3	Biochemical Oxygen Demand (BOD ₅)	mg/l	2,404	2,101		1,736	1,807	1,968	1,978	1,999	1,981	2,455		2,430	1,904	1,810	2,062	2,107	1,629	2,127		2,407
4	Chemical Oxygen Demand (COD)	mg/l	5,649	4,559		4,288	5,566	6,219	6,785	5,511	4,061	5,622		5,832	6,340	5,575	4,908	5,390	3,486	7,232		7,895
5	Total Suspended Solids (TSS)	mg/l	4,279	3,761		3,594	3,144	4,684	4,629	4,015	4,814	4,247		4,082	3,351	2,932	4,165	3,932	2,867	3,935		5,175
6	Total Dissolve Solids (TDS)	mg/l	1,351	1,326		1,499	1,519	1,629	1,315	1,440	1,564	1,550		1,721	1,571	1,640	1,486	1,589	1,481	1,724		1,603

100 TPD Municipal Solid Waste (MSW) Facility at Calangute, North Goa

Sr. No.	Description	Unit	1-May	2-May	3-May	4-May	5-May	6-May	7-May	Weekly Average 1-7	8-May	9-May	10-May	11-May	12-May	13-May	14-May	Weekly Average 8-14	15-May	16-May	17-May	18-May
6.2 Treated Effluent Quality:																						
1	pH	---	6.84	7.42		7.32	6.63	7.10	7.26	7.10	7.30	6.61		6.61	7.25	7.43	7.28	7.08	6.87	7.07		7.44
2	Biochemical Oxygen Demand (BOD5)	mg/l	6	9		9	7	9	7	8	6	5		9	8	8	7	7	5	8		9
3	Chemical Oxygen Demand (COD)	mg/l	68	85		70	74	81	68	74	59	56		54	69	75	79	65	85	81		69
4	Total Suspended Solids (TSS)	mg/l	7	10		10	8	10	8	9	7	6		10	9	9	8	8	6	9		10
5	Total Dissolve Solids (TDS)	mg/l	1,446	1,353		1,634	1,610	1,743	1,433	1,537	1,658	1,628		1,876	1,587	1,640	1,575	1,661	1,481	1,810		1,667

8 HOUSEKEEPING:																						
Sr. No.	Description	Unit	1-May	2-May	3-May	4-May	5-May	6-May	7-May	Weekly Average 1-7	8-May	9-May	10-May	11-May	12-May	13-May	14-May	Weekly Average 8-14	15-May	16-May	17-May	18-May
1	Hygienic Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
2	Cleanliness	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
3	Manpower Deployed	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
4	Safety Norms	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
5	Treatment Methodology	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
6	Storage Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted

100 TPD Municipal Solid Waste (MSW) Facility at Calangute, North Goa

1 WASTE:																							
Sr. No.	Description	Unit	19-May	20-May	21-May	Weekly Average 15-21	22-May	23-May	24-May	25-May	26-May	27-May	28-May	Weekly Average 22-28	29-May	30-May	31-May	Weekly Average 29-31	Monthly Average 1-31				
1.1 Input Waste:																							
1	Type 1: Dry Waste	TPD	61.45	48.78	42.84	51.43	56.06%	59.84	50.17	33.44	40.60	46.17	41.81	50.84	46.12	51.45%	44.57	48.78	28.91	40.75	47.40%	49.32	55.44%
2	Type 2: Wet Waste	TPD	37.65	38.62	40.05	37.77	41.17%	43.65	41.33	33.67	39.25	42.13	44.03	40.17	40.60	45.29%	46.57	43.23	37.42	42.41	49.32%	37.17	41.79%
3	Type 3: Mixed Waste	TPD	0.00	4.89	1.57	0.92	1.01%	0.00	2.29	0.00	2.29	0.22	2.93	0.00	1.10	1.23%	0.00	0.00	0.00	0.00	0.00%	0.46	0.51%
4	Type 4: Tree Waste	TPD	1.40	1.28	1.78	1.62	1.76%	2.74	1.52	1.46	0.90	1.63	1.57	2.93	1.82	2.03%	6.08	1.26	1.13	2.82	3.28%	2.00	2.25%
5	Total.....(1)+(2)+(3)+(4)	TPD	100.50	93.57	86.24	91.73	100.00%	106.23	95.31	68.57	83.04	90.15	90.34	93.94	89.65	100.00%	97.22	93.27	67.46	85.98	100.00%	88.95	100.00%

- # **Note:**
 1 **Type-I: Dry Waste:** This has 25-30% Organic and 70-75% Inorganic.
 2 **Type-II: Wet Waste:** This has 65-70% Organic and 30-35%
 3 **Type-I: Mixed Waste:** This has 45-50% Organic and 50-55% Inorganic.

Sr. No.	Description	Unit	19-May	20-May	21-May	Weekly Average 15-21	22-May	23-May	24-May	25-May	26-May	27-May	28-May	Weekly Average 22-28	29-May	30-May	31-May	Weekly Average 29-31	Monthly Average 1-31				
1.2 Output Products:																							
1	Organic Fraction	TPD	42.54	42.31	39.36	40.18	43.81%	44.71	44.55	33.33	39.52	42.07	44.26	41.09	41.36	46.13%	41.92	43.30	32.37	39.20	45.59%	38.97	43.81%
2	Inorganic Fraction:																						
	Recyclables	TPD	7.06	6.79	6.17	6.58	7.17%	7.72	6.86	4.64	6.34	6.49	6.45	6.75	6.46	7.21%	6.36	6.80	4.58	5.91	6.88%	6.30	7.08%
	RDF	TPD	48.21	41.91	37.83	42.19	45.99%	47.75	41.06	28.20	35.01	38.12	36.82	41.87	38.41	42.84%	41.75	39.03	28.31	36.36	42.29%	40.12	45.10%
	Bulking Material	TPD	1.30	1.27	1.10	1.16	1.27%	1.61	1.32	0.94	1.26	1.32	1.23	1.29	1.28	1.43%	1.11	1.32	1.07	1.17	1.36%	1.22	1.37%
	Inert	TPD	0.00	0.00	0.00	0.00	0.00%	1.70	0.00	0.00	0.00	0.52	0.00	0.00	0.32	0.35%	0.00	1.56	0.00	0.52	0.60%	0.34	0.38%
3	Tree Waste	TPD	1.40	1.28	1.78	1.62	1.76%	2.74	1.52	1.46	0.90	1.63	1.57	2.93	1.82	2.03%	6.08	1.26	1.13	2.82	3.28%	2.00	2.25%

2 RECYCLABLES:																					
Sr. No.	Description	Unit	19-May	20-May	21-May	Weekly Average 15-21	22-May	23-May	24-May	25-May	26-May	27-May	28-May	Weekly Average 22-28	29-May	30-May	31-May	Weekly Average 29-31	Monthly Average 1-31		
1	Glass	Kg	139	111	110	116	124	113	81	82	106	89	100	99	100	138	93	110	108		
2	Aluminum	Kg	89	55	76	75	83	56	60	66	71	89	82	72	73	92	40	68	64		
3	Metal	Kg	178	148	152	152	155	150	107	123	133	169	146	140	146	138	126	137	145		
4	Tetra Pack	Kg	99	92	42	80	103	75	60	49	80	89	91	78	55	64	60	60	71		
5	Hard Plastic	Kg	198	166	118	151	197	131	81	123	106	142	164	135	164	110	113	129	133		
6	PET	Kg	129	111	93	110	207	94	107	115	133	89	91	119	164	138	66	123	126		
7	Mixed Plastic	Kg	6,144	6,054	5,498	5,821	6,768	6,181	4,094	5,733	5,789	5,726	5,988	5,754	5,587	6,054	4,020	5,220	5,584		
8	Thermocol + Styrofoam	Kg	79	55	84	74	83	56	47	49	71	62	91	66	73	64	66	68	67		
9	Cloth + Rags + Textiles	Kg	743	655	794	734	962	544	450	739	646	639	701	669	802	883	471	719	675		
10	Leather + Rexine + Rubber	Kg	793	471	456	674	1,035	591	664	509	744	559	555	665	802	543	511	619	644		
11	Paper + Cardboard	Kg	634	554	574	577	621	563	470	509	549	559	555	547	638	598	425	554	558		
12	Coconut	Kg	664	720	524	587	994	760	470	756	770	675	737	737	474	718	643	612	661		

- # **Note:**
 1 Item No. 9 (Cloth + Rags + Textiles) and 10 (Leather + Rexine + Rubber) are sent to Cement Plants as RDF.
 2 Item No. 11 (Paper + Cardboard) and 12 (Coconut) are used as Bulking Material in Composting.

3 DISPOSAL OF INERT:																						
Sr. No.	Description	Unit	19-May	20-May	21-May	Weekly Average 15-21	22-May	23-May	24-May	25-May	26-May	27-May	28-May	Weekly Average 22-28	29-May	30-May	31-May	Weekly Average 29-31	Monthly Average 1-31			
1	As per Tender: Maximum 10% of Inerts of the Total Input Waste (excluding Mulched Tree Waste) as received in the Facility.																					
2	Input Waste	TPD	100.50	93.57	86.24	91.73	106.23	95.31	68.57	83.04	90.15	90.34	93.94	89.65	97.22	93.27	67.46	85.98	88.95			
3	Inert Fraction	TPD	0.00	0.00	0.00	0.00	1.70	0.00	0.00	0.00	0.52	0.00	0.00	0.32	0.00	1.56	0.00	0.52	0.34			
4	% of Total Input Waste.....(3) ÷ (2)	%	0.00%	0.00%	0.00%	0.00%	1.60%	0.00%	0.00%	0.00%	0.58%	0.00%	0.00%	0.31%	0.00%	1.67%	0.00%	0.56%	0.38%			

4 ELECTRICITY GENERATION:																					
Sr. No.	Description	Unit	19-May	20-May	21-May	Weekly Average 15-21	22-May	23-May	24-May	25-May	26-May	27-May	28-May	Weekly Average 22-28	29-May	30-May	31-May	Weekly Average 29-31	Monthly Average 1-31		
3.1 Biogas Gensets:																					
1	Biogas Genset-I: Running Time	hr/day	22.15	12.95	23.50	19.46	22.75	22.80	23.65	24.00	23.40	23.20	22.00	23.11	23.80	23.95	16.44	21.40	19.08		
2	Biogas Genset-I: Biogas Consumption	Nm ³ /day	1,621	1,085	2,054	1,554	2,064	2,082	2,110	1,875	1,847	1,816	1,615	1,916	1,702	1,726	1,413	1,614	1,539		
3	Biogas Genset-I: Energy Generation	kW.hr/day	2,380	1,720	3,220	2,386	3,420	3,370	3,400	2,870	2,850	2,720	2,200	2,975.71	2,350	2,400	2,318	2,356	2,344		
4	Biogas Genset-II: Running Time	hr/day	20.90	7.35	23.40	17.41	3.40	14.85	10.10	21.85	22.05	18.70	21.90	16.12	23.80	22.85	14.55	20.40	17.33		
5	Biogas Genset-II: Biogas Consumption	Nm ³ /day	1,401	549	1,920	1,277	225	1,249	782	1,570	1,624	1,299	1,497	1,178	1,592	1,533	972	1,366	1,283		
6	Biogas Genset-II: Energy Generation	kW.hr/day	2,170	880	3,210	2,069	330	2,090	1,270	2,520	2,660	2,010	2,170	1,864	2,360	2,270	1,450	2,027	2,043		
7	Total Biogas Consumption = (2)+(5)	Nm³/day	3,023	1,634	3,974	2,831	2,289	3,331	2,892	3,444	3,471	3,115	3,113	3,094	3,294	3,259	2,386	2,979	2,822		
8	Total Energy Generation = (3)+(6)	kW.hr/day	4,550	2,600	6,430	4,454	3,750	5,460	4,670	5,390	5,510	4,730	4,370	4,840	4,710	4,670	3,768	4,383	4,388		

100 TPD Municipal Solid Waste (MSW) Facility at Calangute, North Goa

Sr. No.	Description	Unit	19-May	20-May	21-May	Weekly Average 15-21	22-May	23-May	24-May	25-May	26-May	27-May	28-May	Weekly Average 22-28	29-May	30-May	31-May	Weekly Average 29-31	Monthly Average 1-31
3.2 Electricity Generation:																			
1	As per Tender: Minimum electricity to be generated in the plant shall be 0.4 MW per 100 tons of Input Biodegradable Waste as received in the Facility.	MW/100 MT	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
2	Biodegradable Waste = 1.2.2	TPD	37.65	38.62	40.05	37.77	43.65	41.33	33.67	39.25	42.13	44.03	40.17	40.60	46.57	43.23	37.42	42.41	37.17
3	Guaranteed Electricity Generation = (3.2.2 x 3.2.1) ÷ 100	kW	0.15	0.15	0.16	0.15	0.17	0.17	0.13	0.16	0.17	0.18	0.16	0.16	0.19	0.17	0.15	0.17	0.15
4	Guaranteed Electricity Generation = 3.2.3 x 24 x 1000	kW.hr/day	3,614	3,708	3,845	3,626	4,190	3,968	3,232	3,768	4,044	4,227	3,856	3,898	4,471	4,150	3,592	4,071	3,569
5	Available Electricity Generation = (A2 ÷ 24) + (A4 ÷ 24)	kW	190	108	268	186	156	228	195	225	230	197	182	202	196	195	157	183	183
6	Available Electricity Generation = 3.2.5 ÷ 100	MW/100 MT	0.50	0.28	0.67	0.49	0.36	0.55	0.58	0.57	0.54	0.45	0.45	0.50	0.42	0.45	0.42	0.43	0.49

5 BIOGAS FLARE:																			
Sr. No.	Description	Unit	19-May	20-May	21-May	Weekly Average 15-21	22-May	23-May	24-May	25-May	26-May	27-May	28-May	Weekly Average 22-28	29-May	30-May	31-May	Weekly Average 29-31	Monthly Average 1-31
1	Operation Time	hr/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Biogas Flared	Nm ³ /day	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0

6 DIGESTERS:																			
Sr. No.	Description	Unit	19-May	20-May	21-May	Weekly Average 15-21	22-May	23-May	24-May	25-May	26-May	27-May	28-May	Weekly Average 22-28	29-May	30-May	31-May	Weekly Average 29-31	Monthly Average 1-31
5.1 Digester-I: Front End																			
1	pH	---	7.14	7.15	7.16	7.14	7.14	7.15		7.16	7.17	7.14	7.15	7.15	7.14	7.15		7.15	7.17
2	TSS	ppm	33,745	33,985	34,259	33,403	34,688	35,165		35,944	36,295	36,788	36,986	35,978	37,269	37,512		36,907	33,842
3	VSS	ppm	22,189	22,467	22,785	21,844	23,118	23,564		23,945	24,311	24,821	25,112	24,145	25,625	25,800		25,101	22,501
4	Total Alkalinity	ppm as CaCO ₃	7,250	7,200	7,175	7,279	7,200	7,250		7,225	7,200	7,150	7,100	7,188	7,075	7,025		7,108	7,472
5	VFA	ppm as HAC	1,502	1,585	1,585	1,544	1,585	1,585		1,585	1,585	1,668	1,585	1,599	1,585	1,668		1,621	1,565
5.2 Digester-I: Back End																			
1	pH	---	7.16	7.17	7.18	7.15	7.16	7.18		7.19	7.18	7.17	7.16	7.17	7.16	7.17		7.17	7.19
2	TSS	ppm	33,698	33,912	34,531	33,382	34,625	35,113		35,924	36,269	36,752	36,944	35,938	37,242	37,498		36,875	33,800
3	VSS	ppm	22,100	22,425	23,854	21,988	23,095	23,469		23,921	24,282	24,798	25,095	24,110	25,586	25,786		25,075	22,499
4	Total Alkalinity	ppm as CaCO ₃	7,300	7,275	7,275	7,354	7,250	7,225		7,200	7,150	7,175	7,200	7,200	7,225	7,250		7,210	7,529
5	VFA	ppm as HAC	1,419	1,502	1,502	1,461	1,585	1,585		1,585	1,502	1,585	1,502	1,557	1,585	1,585		1,563	1,495
5.3 Buffer Tank: Front End																			
1	pH	---	7.25	7.25	7.26	7.25	7.26	7.27		7.29	7.28	7.27	7.29	7.28	7.30	7.31		7.29	7.28
2	TSS	ppm	27,965	28,128	28,261	27,816	28,456	28,745		28,967	29,344	29,864	30,216	29,265	30,865	31,059		30,254	22,857
3	VSS	ppm	17,312	17,346	17,367	17,290	17,648	17,926		18,433	18,864	19,113	19,654	18,606	19,982	20,299		19,531	18,221
4	Total Alkalinity	ppm as CaCO ₃	8,350	8,275	8,200	8,363	8,250	8,275		8,225	8,100	8,025	7,950	8,138	7,850	7,800		7,953	8,313
5	VFA	ppm as HAC	1,087	1,087	1,087	1,073	1,087	1,004		1,087	1,087	1,170	1,253	1,115	1,336	1,336		1,242	1,101
5.4 Buffer Tank: Back End																			
1	pH	---	7.26	7.26	7.28	7.26	7.27	7.29		7.31	7.30	7.32	7.29	7.30	7.31	7.32		7.31	7.30
2	TSS	ppm	27,936	28,103	28,328	27,685	28,403	28,702		28,931	29,316	29,833	30,196	29,230	30,832	30,985		30,215	28,142
3	VSS	ppm	17,285	17,327	17,100	17,231	17,602	17,894		18,394	18,833	19,069	19,612	18,567	19,932	20,259		19,488	18,137
4	Total Alkalinity	ppm as CaCO ₃	8,350	8,300	8,275	8,383	8,250	8,225		8,200	8,150	8,100	8,025	8,158	7,950	7,875		8,022	8,347
5	VFA	ppm as HAC	1,004	1,004	1,087	1,046	1,087	1,004		1,004	1,087	1,170	1,170	1,087	1,253	1,336		1,203	1,080
5.5 Digester-II: Front End																			
1	pH	---	7.09	7.10	7.11	7.09	7.10	7.11		7.11	7.12	7.11	7.12	7.11	7.13	7.13		7.12	7.12
2	TSS	ppm	34,112	34,865	35,504	33,714	35,694	35,936		36,256	36,731	37,021	37,624	36,544	38,122	38,645		37,591	34,071
3	VSS	ppm	22,695	22,834	23,086	22,436	23,439	23,812		24,239	24,468	24,852	25,436	24,374	25,943	26,325		25,386	22,872
4	Total Alkalinity	ppm as CaCO ₃	7,125	7,075	7,025	7,150	7,050	7,100		7,125	7,150	7,125	7,100	7,108	7,025	7,025		7,077	7,351
5	VFA	ppm as HAC	1,585	1,585	1,668	1,599	1,668	1,751		1,668	1,751	1,668	1,668	1,696	1,751	1,751		1,707	1,601
5.6 Digester-II: Back End																			
1	pH	---	7.11	7.12	7.13	7.11	7.13	7.12		7.11	7.13	7.12	7.12	7.12	7.13	7.14		7.13	7.14
2	TSS	ppm	34,059	34,813	35,843	33,738	35,634	35,901		36,213	36,702	36,989	37,594	36,506	38,065	38,612		37,553	33,973
3	VSS	ppm	22,638	22,806	23,318	22,445	23,394	23,786		24,213	24,434	24,822	25,403	24,342	25,931	26,280		25,356	22,773
4	Total Alkalinity	ppm as CaCO ₃	7,225	7,175	7,125	7,254	7,075	7,150		7,175	7,200	7,150	7,150	7,150	7,050	7,125		7,125	7,424
5	VFA	ppm as HAC	1,585	1,585	1,585	1,571	1,585	1,668		1,585	1,668	1,585	1,585	1,613	1,668	1,751		1,640	1,538

7 EFFLUENT TREATMENT PLANT:																			
Sr. No.	Description	Unit	19-May	20-May	21-May	Weekly Average 15-21	22-May	23-May	24-May	25-May	26-May	27-May	28-May	Weekly Average 22-28	29-May	30-May	31-May	Weekly Average 29-31	Monthly Average 1-31
6.1 Raw Effluent Quality:																			
1	Flow	m ³ /day	69.15	53.92	53.21	54.15	58.45	32.29		26.50	29.50	51.93	57.45	42.69	60.02	55.05		57.54	51.84
2	pH	---	7.11	7.28	7.68	7.14	7.82	6.72		7.16	6.54	6.80	6.23	6.88	6.17	7.66		6.92	7.05
3	Biochemical Oxygen Demand (BOD5)	mg/l	1,698	2,154	1,777	1,965	2,277	1,656		1,517	1,924	2,184	2,065	1,937	2,217	1,551		1,884	1,979
4	Chemical Oxygen Demand (COD)	mg/l	5,281	5,342	5,402	5,773	6,831	4,157		3,747	4,329	7,273	6,670	5,501	7,737	4,157		5,947	5,624
5	Total Suspended Solids (TSS)	mg/l	3,379	4,782	2,914	3,842	4,508	3,825		2,503	4,579	4,062	4,667	4,024	4,146	3,443		3,795	3,922
6	Total Dissolve Solids (TDS)	mg/l	1,746	1,522	1,606	1,614	1,612	1,673		1,422	1,707	1,673	1,743	1,638	1,633	1,687		1,660	1,588

100 TPD Municipal Solid Waste (MSW) Facility at Calangute, North Goa

Sr. No.	Description	Unit	19-May	20-May	21-May	Weekly Average 15-21	22-May	23-May	24-May	25-May	26-May	27-May	28-May	Weekly Average 22-28	29-May	30-May	31-May	Weekly Average 29-31	Monthly Average 1-31
6.2 Treated Effluent Quality:																			
1	pH	---	6.72	7.02	6.78	6.98	7.30	7.48		7.11	6.58	6.71	6.75	6.99	6.75	6.66		6.71	6.97
2	Biochemical Oxygen Demand (BOD5)	mg/l	7	6	7	7	8	6		5	9	8	5	7	6	5		6	7
3	Chemical Oxygen Demand (COD)	mg/l	89	58	77	77	56	73		55	57	53	89	64	89	50		70	70
4	Total Suspended Solids (TSS)	mg/l	8	7	8	8	9	7		6	10	9	6	8	7	6		7	8
5	Total Dissolve Solids (TDS)	mg/l	1,763	1,552	1,734	1,668	1,612	1,673		1,493	1,741	1,673	1,900	1,682	1,715	1,856		1,786	1,667

8 HOUSEKEEPING:																			
Sr. No.	Description	Unit	19-May	20-May	21-May	Weekly Average 15-21	22-May	23-May	24-May	25-May	26-May	27-May	28-May	Weekly Average 22-28	29-May	30-May	31-May	Weekly Average 29-31	Monthly Average 1-31
1	Hygienic Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
2	Cleanliness	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
3	Manpower Deployed	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
4	Safety Norms	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
5	Treatment Methodology	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
6	Storage Conditions	---	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted