



2019 07

1.

30 (

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2.

3.

4.

5.

6.

7.

8.

1

70%

*

700.5

	CAS 7664-39-3	HF 20 -83.1 19.52 (=1) 1.15		LD ₅₀ LC ₅₀ 1044 g/ ³ ()
	CAS 7697-37-2	HNO ₃ 1.503(25) 1.41(20)(68%) -41.59 83 120.5 (68%)		
	CAS 1310-73-2	NaOH 318.4 1390 =1 2.12		
	-	100 g/c ³ 0.9-1.2 23		LD ₅₀ 1000 g/ g
[C ₇ H ₁₂ O]	CAS 141-32-2	128.17 -64.6 145.7 37 (=1)0.89 1.33K a (35.5)		LD ₅₀ 900 g/ g() LC ₅₀ 14305 g/ ³ 4 ()
[C ₄ H ₆ O ₂]	CAS 108-05-4	86.09 -93.2 71.8-73 -8 (=1)0.93 13.3K a(21.5)		LD ₅₀ 2900 g/ g() LC ₅₀ 14080 g/ ³ 4 ()
	CAS 7440-59-7	He 4.00 -272.1 -268.9 (=1)0.15 -271 =1 0.14		
	CAS 7727-37-9	N ₂ 28.013 -211.4 -195.8 1.25g/L 0 1		

	CAS 7782-39-0	D ₂ 4.032 -254.42 -249.5 (=1)0.139	75% 5%	
	CAS 7440-37-1	A 39.95 -189.2 -185.7 (=1)1.40(-186) (=1)1.38		
	CAS 124-38-9	CO ₂ 44.01 -56.5 171.3g/c ³ 0 (=1)1.977		

1-3

1	/	8	3	11
2		32	0	32
3	DWCDAT-50/3000	32	0	32
4	LIS-G+NCTM+CM5	32	0	32
5	/			

20		/	3	0	3
21		/	15	0	15
22		/	4	0	4
23		/	1	1	2
24	LED	/	1	0	1
25		YP-JIZHONG-ZTT	2	1	3
26		/	4	0	4
27		/	5	0	5
28		HC-F500GSG-S 500RT/	5	0	5
29		/	3	0	3
30		300 ³ /h	5	0	5
31		/	3	0	3
32	ABB	/	4	0	4
33		/	1	0	1
34		/	110	0	110
35		/	46	0	46
36		/	1	0	1
37		/	1	0	1
38		/	1	0	1
39		/	1	0	1
40		3 /h	2	0	2
41		/	2	0	2
42	UPS	/	1	0	1
43		/	1	0	1
44		/	2	0	2
45	DDC	/	1	0	1
46		/	2	0	2
47		NTH408-70A	3	0	3
48		/	2	0	2
49		/	1	0	1
50		/	1	0	1
51		/	1	0	1
52		PK2880	3	0	3
53		OTDR8000	6	0	6
54		PK2300	6	0	6
55		OTDR8000I	1	0	1
56		CD500	3	0	3

57		PK2311	3	1	4
58		/	16	0	16
59		5 ³ / i	3	0	3
60		/	1	0	1
61		/	22	0	22
62		DV3TLVTJ0	13	0	13
63		/	1	0	1
64	OTDR	MT9083B2	1	0	1
65		50 ³ 10 ³ 5 ³	3	0	3
66		300 ² /	3	0	3
67		/	8	0	8
68		/	8	0	8
69		/	20	0	20
70		/	5	0	5
71		/	5	0	5
72		/	4	0	4
73		/	1	0	1
74		/	8	0	8
75		/	13	0	13
76		/	23	0	23
77		FTP1000-0501600S- LCF	4	3	7
78		/	2	0	2
79		/	16	0	16
80		/	18	0	18
81		/	6	0	6
82		/	10	0	10
83		/	17	0	17
84		/	0	3	3
85		PT-2500	0	3	3
86	f e g h a i	/	0	2	2
87	fibe a a i e	2300AG	0	3	3
88	UV		0	1	1
89		/	0	3	3
90		/	0	3	3
91			0	6	6
92		/	0	3	3

93		TF-3000	0	24	24
94	DDC	/	0	1	1
95		/	0	1	1
96		/	0	1	1
97	UV		0	1	1
98		/	0	2	2

2015 10

1000 2016 12

[2016]112 2017 8 27

([2017]5

2017 11 16

[2017]15

15000

62961 ² 21424.21 ²

32 3

187.5 / 400 /

R5 280 /

(ULB125)70 / ULB80 50 /

2018 11 14

6 [2018]82

682

2019 5

2 16

<

(2011) 2013

(2011)>

28

<

2012

>

([2013]183)

28

(2012)

2012

2012

2018 74

15

1-4

1			3600		

3600

5

2017

1

24

NO₂

24

PM₁₀

24

CO 24

PM_{2.5} 24

O₃

8

PM_{2.5}

GB096-2008 3

GB3838-2002

1

HF

FQ1

15

FQ3 42

2

+

GB8978-1996 4

3

3

HF

FQ1 15

FQ3 42

1-5

1	2011	2011
2	2012	2012
3	2012	2012

4	2013 2013	2013 2013
2019	<p>2017 55</p> <p>VOC 4.</p>	<p>VOC</p> <p>VOC VOC</p> <p>VOC VOC</p> <p>VOC VOC</p> <p>[C3832]</p> <p>[2018]22</p>
		[C3832]

2012
2013 9
2012
2020 0.4 2013 183
2020
2018
2007
[C3832]
2020
VOC
2018
2019 2020

<p>3</p>	
<p>VOC</p> <p>VOC</p> <p>VOC</p> <p>2015 10%</p> <p>2020</p>	<p>VOC</p> <p>VOC</p> <p>VOC</p> <p>VOC</p>
<p>2018</p> <p>VOC</p> <p>2019</p> <p>45</p> <p>VOC</p>	<p>2020</p>

ULB80 50

/

1-7

32					7200h
		2000	1812.5	-187.5	
		0	400	+400	
		2000	2212.5	212.5	

1-8 10

	5 1	dB	1550 0.10 1625 0.40
	1310	dB/	1310 0.32
	1550	dB/	1550 0.18
	1310		8.8 0.4
			1300 1324
	22		1260
			125 1.0
			245 7
		%	1.0
	/		0.5
	/		10

	7.5 200	dB	1550 0.10
	5 10	dB	1550 0.05
	1550	dB/	1550 0.23
	1625	dB/	1625 0.25
	1550		8.4 0.6
			1530
			125 1.0
		%	0.8
	/		0.5

	5 200	dB	1550 0.10
	2.5 10	dB	1550 0.02
	1550	dB/	1550 0.35
	1625	dB/	1625 0.38
	1550		6.4 0.6
			1530
			80 1.0
		%	0.8
	/		0.5

1
3792.5 /a

2
1788 /a 101.3 /a + 1840 /a
GB8978-1996

GB18918-2002 A

3
3 2500KVA

4
5 1.06

^{3/} i 4 1 4 8 g 2 1
25.46 ^{3/} i 15.78 ^{3/} i 9.68 ^{3/} i
3.16 ^{3/} i

5
5 1900 /h
1200 /h 24 /h

5

R22

11021

7329

3692

1466

6

1-11

		52.64 ³	
		15.81 ³	
		10.53 ³	
		50L	
		10.53 ³	

1-12

	3	32 /	3 2000
		187.5 400	/
			/
			/
		1690 ²	
		920 ²	
		60.16 ²	
		52.64 ³ 10.53 ³ 50L	1 15.81 ³
		10.53 ³	
		2500 KVA 3600	3
		3792.5 /a	/

		46	
		3729.3 /a	+
		5 1.06 ^{3/} i 4 8 g	
		25.46 ^{3/} i 15.78 ^{3/} i 9.68 ^{3/} i	3.16 ^{3/} i
		5 1900 /h 1200 /h	24 /h
		5 7329 3692	11021 1466
		2 1 /h 3 /h	0.6 /h
		2	
		+42	
		2	
		1 9000 ^{3/} h	
		48 /d	
		6 ²	
		20 ²	

20

0.13%

1-13

		1	/		
		1	/		
		2	/		
	+42	2	/		
		1	8		

		/	12		
		/	/		
		/	/		
	/	/	20	/	

188

1

2

3

2015 10

1000

2016 12

[2016]112

2017 8 27

([2017]5)

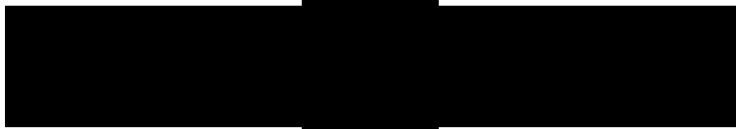
2017 11 16

[2017]15

1-14

16		1000	1000	[2016]112	[2017]5
16		1000	1000	[2017]15	

1-15

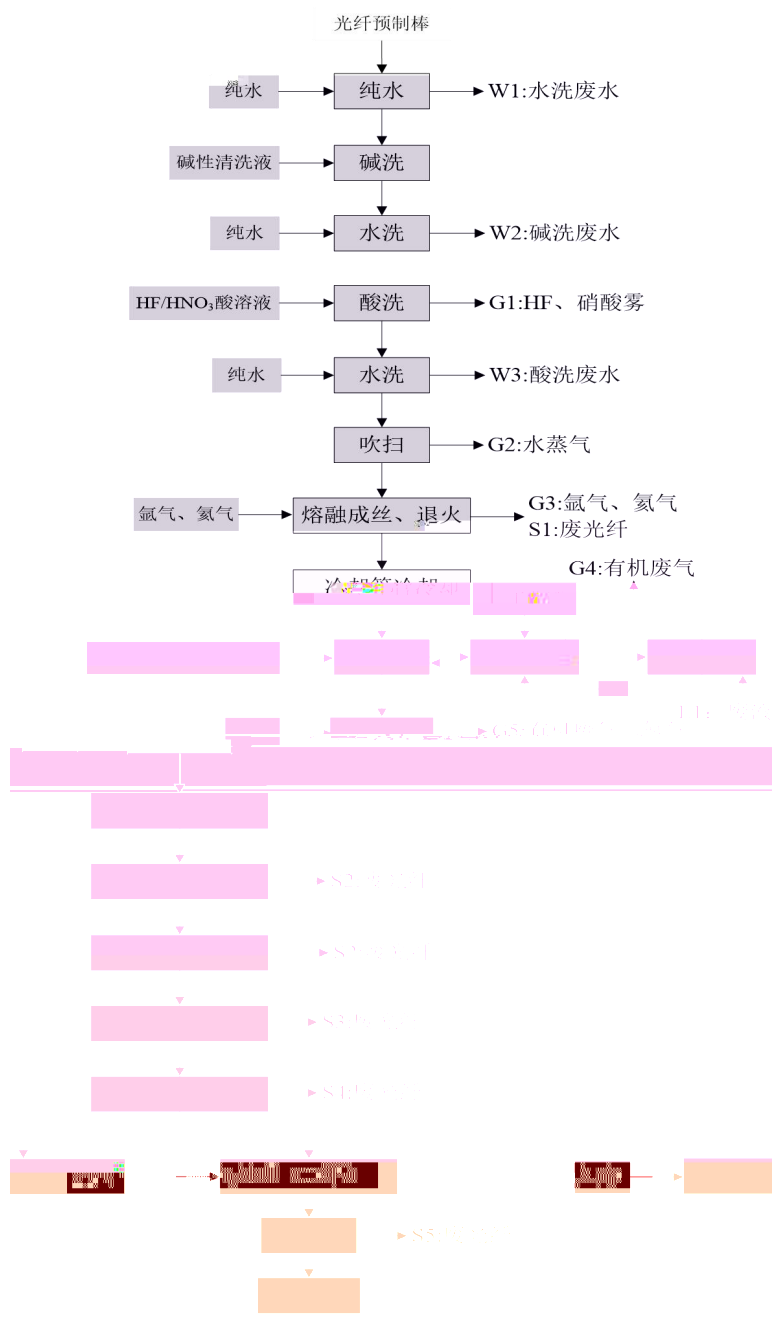


		1000	
		1000	
		-	
		1690 ²	
		920 ²	
		60.16 ²	
		52.64 ³ 1	
		10.53 ³ 50L	
		5 1.06 ³ / i	
		46	
		5	R22
		5	-
		3/h ²	50%
	2500 KVA 3 3600 /		
		/	
		+15	
		2	
		+42 2	
		48 /d	
		4 ³	
		25dB(A)	
		20 ²	
	6 ²		

	HNO ₃							
4		30%NaOH	0.6L	0.6L	1.2L	0.2L		
5		30%-50% 30%-50% 5%-10% 1%-5%	442 /a	442 /a	884 /a	8	1 ³	/
6		96%	0.62 /a	0.62 /a	1.12 /a	0.2		/
7			0.1 /a	0.1 /a	0.2 /a	0.2		/
8		/	67	67	134	/	/	/
9		/	67	67	134	/	/	/
10		/	1965 /a	1965 /a	3930 /a	40	52.64 ³	/
11		/	542 /a	542 /a	1084 /a	6	15.81 ³	/
12		/	55951 ³ / a	55951 ³ / a	111902 ³ / a	5000 ³	5000 ³	
13		/	500 ³ /a	500 ³ /a	1000 ³ /a	0.013 ⁴	50L	/
14		/	159.7 /a	159.7 /a	319.4 /a	10.53	10.53 ³	/

5		/	47	0	47
6		/	16	16	32
7		/	5	0	5
8		/	16	16	32
9		/	16	0	16
10	LED	/	16	16	32
11	LED	/	16	16	32
12		/	8	8	8
13		/	0	23	23
14	/	/	1	1	2
15		/	0	10	10
16		/	1	1	2
17		/	0	1	1
18		/	0	8	8
19		/	0	1	1
20		/	0	3	3
21		/	0	15	15
22		/	0	4	4
23		/	0	1	1
24	LED	/	0	1	1
25		/	1	1	2
26		/	0	4	4
27		/	3	2	5
28		HC-F500GSG-S 500RT/	3	2	5
29		/	3	0	3
30		300 ³ /h	3	2	5
31		/	3	0	3
32	ABB	/	2	2	4
33		/	1	0	1
34		/	60	50	110
35		/	38	30	68
36		/	0	1	1
37		/	0	1	1
38		/	0	1	1
39		/	0	1	1
40		3 /h	1	1	2
41		/	0	2	2
42	UPS	/	0	1	1
43		/	0	1	1
44		/	1	1	2
45	DDC	/	0	1	1

46		/	1	1	2
47		NTH408-70A	2	1	3
48		/	1	1	2
49		/	0	1	1
50		/	0	1	1
51		/	0	1	1
52		PK2800	0	3	3
53	OTDR8000	OTDR8000	3	3	6
54	PK2300	PK2300-2302-MFD	3	3	6
55		OTDR8000I	1	0	1
56		CD500	3	0	3
57		PK2311	3	0	3
58		/	16	0	16
59		5 ³ / i	3	0	3
60		/	1	0	1
61		/	22	0	22
62		DV3TLVTJ0	13	0	13
63		/	1	0	1
64	OTDR	MT9083B2	1	0	1
65		50 ³ 10 ³ 5 ³	3	0	3
66		300 ² /	3	0	3
67		/	8	0	8
68		/	8	0	8
69		/	20	0	20
70		/	5	0	5
71		/	5	0	5
72		/	4	0	4
73		/	1	0	1
74		/	8	0	8
75		/	13	0	13
76		/	23	0	23
77		/	4	0	4
78		/	2	0	2
79		/	16	0	16
80		/	18	0	18
81		/	6	0	6
82		/	10	0	10
83		/	17	0	17



+ +

G2

2200

S1

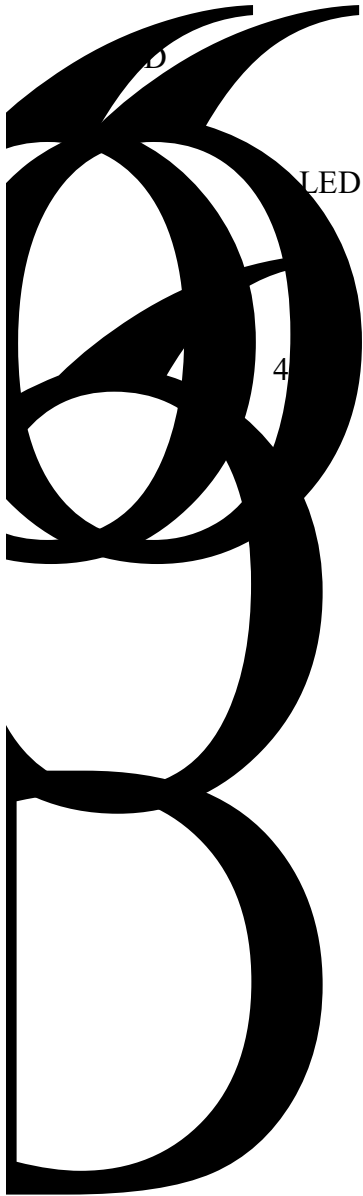
G3

52-55

CO₂

30c 50c 30c

G4



LED

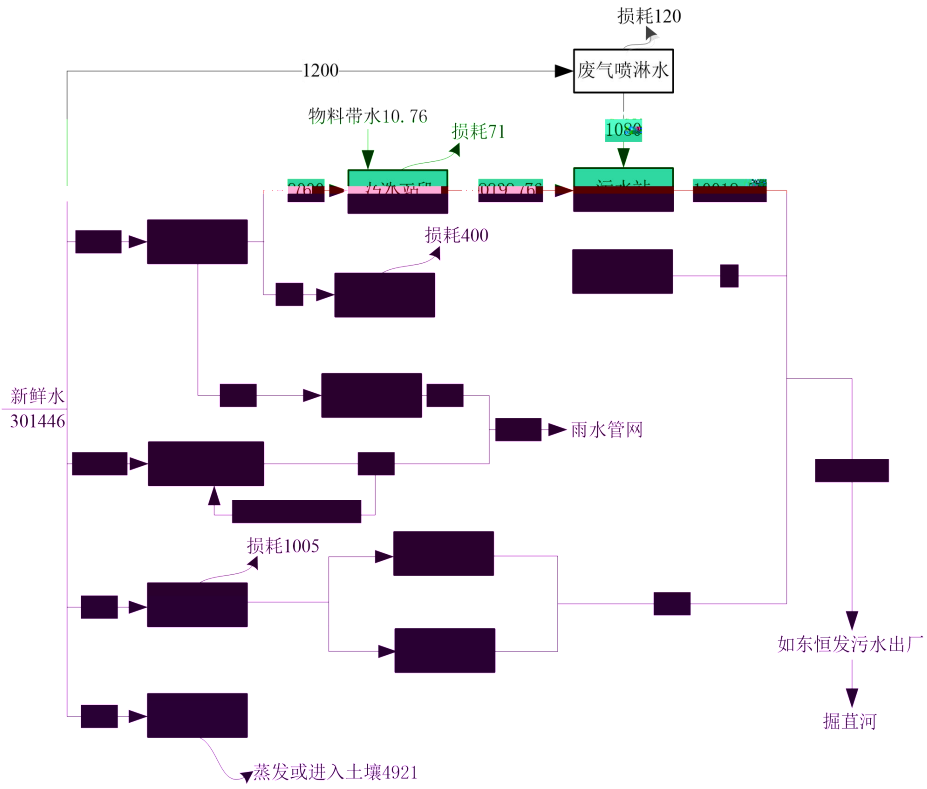
LED

LED

LED

OH-

S5



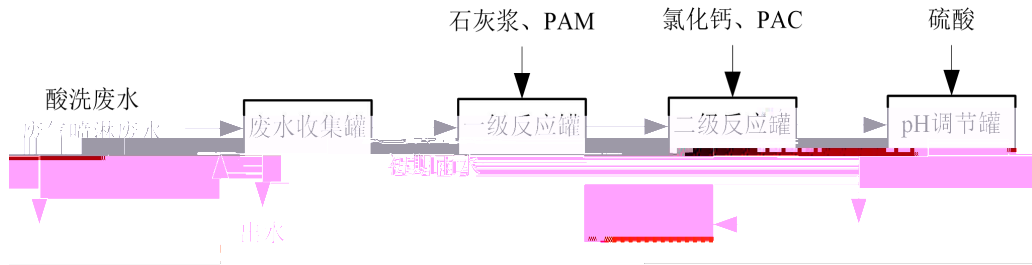
HF

FQ1 15

VOC

FQ3

+
GB8978-1996



2016

2016

RO

GB12348-2008 3

2017 8 27

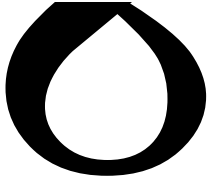
([2017]5

1000

2017

22

2017 4 6 4 7 2017 6 21 6



DB12/524-2014

H	7.21	7.14	7.23	6.9	/	
	226	243	238	236	g/L	
	52	48	54	51	g/L	
	0.206	0.218	0.221	0.215	g/L	
	3.88	3.91	3.79	3.86	g/L	
	1.18	1.20	1.38	1.25	g/L	
	32	32	35	37	/	
	18	17	15	16	/	
	4.345	4.195	4.146	4.229	/	
	0.118	0.118	0.118	0.118	/	
	0.054	0.055	0.050	0.053	/	
	36	31	33	33	g/L	
	12	11	13	82	g/L	
	H	7.14	7.25	7.18	6.9	/
		249	218	222		

236 g/L 51 g/L 0.220 g/L 3.86 g/L 1.25 g/L
GB8978-1996 4

N1	1	9:01	46.6	22:11	43.9	9:32	46.4	22:15	43.0
N2	1	9:15	46.0	22:26	44.8	9:41	46.3	22:24	42.9
N3	1	9:30	47.2	22:42	46.2	9:53	45.1	22:36	43.7
N4	1	9:47	48.0	22:58	43.6	10:09	48.7	22:50	43.4

GB12348-2008 3

4

2016

2016

RO

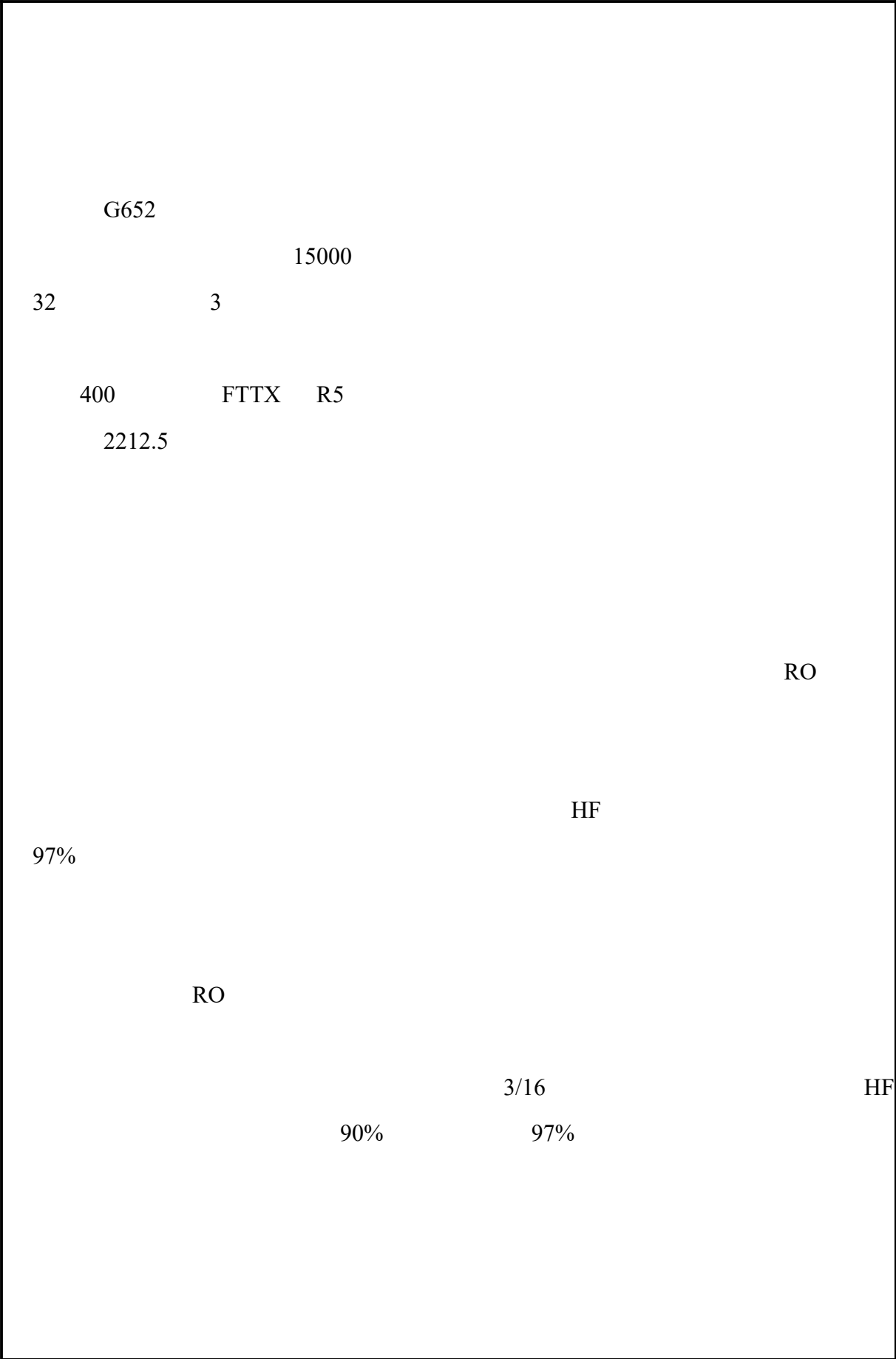
1000

[2016]112

[2016]112

1-22

	HF	0.191	0.191	0.382
		0.081	0.081	0.162
		0.078	0.078	0.156
		0.078	0.078	0.156
	VOC	1.083	1.083	2.166
		7723.88	7889.88	15613.76
	COD	1.853	0.977	2.83
	SS	1.037	0.676	1.713
		0.086	0.086	0.172
		0.092	0.1008	0.1928
	TP	0.011	0.012	0.023
		0	0.072	0.072



		HF	0.191	0.191	0.279	0.103
			0.081	0.081	0.015	0.147
			0.078	0.078	0.015	0.141
			0.078	0.078	0.015	0.141
		VOC	1.083	1.083	0.203	1.963
			9783.88	9709.88	1820.60	17673.16
		COD	0.7827	0.7768	0.146	1.414
		SS	0.9393	0.9321	0.175	1.697
			0.0020	0.0019	0.0004	0.004
			3.7277	3.6995	0.694	6.733
			2640	2880	0	5520
		COD	0.792	1.008	0	1.8
		SS	0.660	0.576	0	1.236
			0.092	0.1008	0	0.193
		TP	0.011	0.012	0	0.023
			0	0.072	0	0.072
			0	0	0	/
			0	0	0	/

*

32 16 19

121 25 40

121 54 30

31 41 06

		39.1	
		-10.6	
		14.9	
		ESE	NW
	/	4.1	
	/	20	
		1044.7	
		1533.4	
		236.8	

1

5

25

1976

60500

2665

36863

30200

28011

2

250 380

1.2

1992

38.12²

2007 8

2008 10

[2008]259

2014 10

2016 2

[2016]14

1

1612.55

42.30%

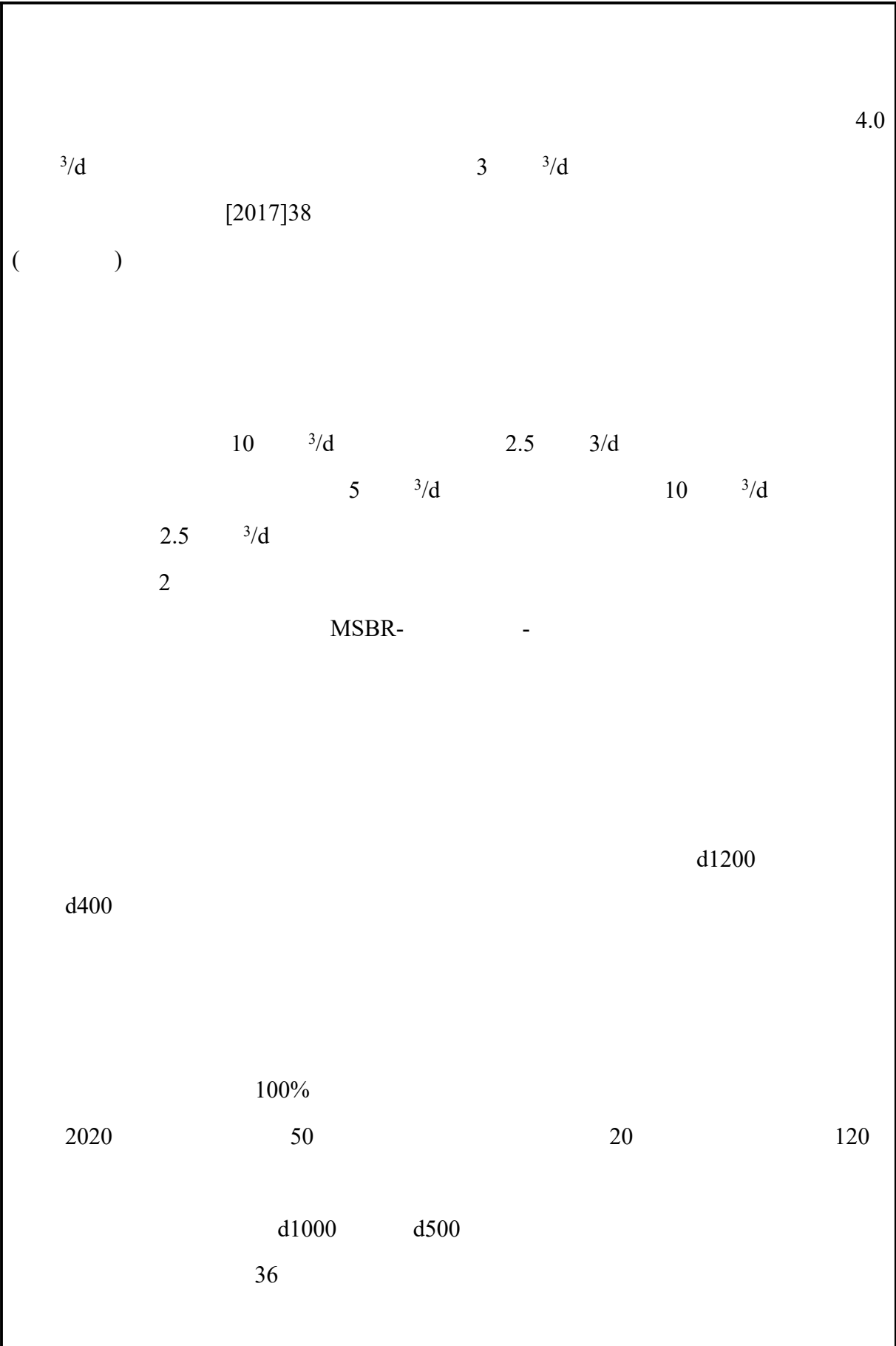
193.41

413.64

164.31

115.39

725.8



110KV 110KV 63000KVA/2
40000KVA/1 110KV
110KV 150000KVA/3 110KV
150000KVA/3

188 3 75 /h 2 15MW

DN300

DN200-300

1800 /d

2002 2004 6 29

2013 11 5 [2013]212

13000 /a

			13000 /a	
19000 /a			10000 /a	2500 /a
HW02		HW03	HW04	HW05
	HW06		HW08	
HW09 / /		HW11		HW12
HW13		HW16	HW17	336-067-17 336-068-17
336-069-17 336-101-17		HW35	HW39	HW40
HW45		HW49 #900-039-49	900-041-49	
900-042-49 900-044-49	900-047-49	900-999-49		HW50 #263-013-50
#275-009-50 276-006-50	261-151-50			
				103
	24		20	10
1				GB3095-2012
2				
	GB3838-2002			SS
SL63-94				
3			GB3096-2008	3

2017 1

			g/ ³	g/ ³		
SO ₂			30	60	0.00	
	24	98	23	150	0.00	
NO ₂			21	40	0.00	
	24	98	58	80	0.00	
PM ₁₀			60	70	0.00	
	24	95	79	150	0.00	
PM _{2.5}			39	35	0.11	
	24	95	53	75	0.00	
O ₃	8	90	118	160	0.00	
CO	24	95	627	4000	0.00	

PM₁₀ SO₂ NO₂ CO O₃

GB3095-2012

PM_{2.5}

GB3095-2012

0.11

GB3095-2012

2017 9.28-9.29

3-2

	TVOC	0.0212-0.0270	0.6	-	-	-	-
		0.0009 0.0010	0.02	0	-	-	-

2016 7 27

2016 7 29

CODc

TP

GB3838-2002

2017 9 27

3-3

1500 N32 21 31 E121 11 36	H	7.41-7.47	
		16	g/L
		0.78	g/L
	TP	0.16	g/L
		0.03	g/L
		0.165	g/L
1000 N32 22 52 E121 11 12	H	7.27-7.39	
		17	g/L
		0.744	g/L
	TP	0.16	g/L
		0.02	g/L
		0.16	g/L

GB3838-2002

GB096-2008

2019 7 27

2019 7 28

4

N ₁	1	54.3	48.6
N ₂	1	53.6	48.4
N ₃	1	54.4	49.6
N ₄	1	53.2	48.5
		65	55
N ₁	1	53.8	48.9
N ₂	1	53.6	48.3
N ₃	1	54.3	47.8
N ₄	1	53.8	47.6
		65	55

GB3096-2008 3

3-5

	327047	3580988				NE	1100
	327820	3581202				NE	1800
	327928	3581392				NE	1900
	328062	3581182				NE	2100
	327547	3582005				NE	2100
	328396	3580318				E	2200
	328392	3580544				E	2200
	328328	3579620				SE	1700
	327320	3579409				SE	1500
	327661	3579525				SE	1600
	328116	3579544				SE	1900
	327614	3578645				SE	2200
	328013	3578917				SE	2400
	326474	3578966				S	1400
	325976	3578122				S	2200
	324212	3579613				WS	2300
	324403	3580196				W	1400
-	326758	3576537				S	3600

			E	3600	3680	-123	-1	E	3976	3965	-12	
			W	829	-807	-178	0	W	905	-847	-328	/
			E	12	12	0	0	E	15	15	0	
			S	75	-75	0	1	S	236	14	-234	/

HF

GB3095-2012

TJ36-79

SO ₂		60	g/ ³	GB3095-2012
	24	150		
	1	500		
NO ₂		40		
	24	80		
	1	200		
NO [1]		50		
	24	100		
	1	250		
PM ₁₀		70		
	24	150		
PM _{2.5}		35		
	24	75		
TSP		200		
	24	300		
CO		4000		
	1	10000		
O ₃	8h	160		
	1	200		
		20	TJ36-79	
		7		
		5000		
		5000		
	1	2000		
	[2]	80		
	[3]	80		

[1]

[2]

10 g/ ³

C =0.470 C -3.595
 [3]
 GBZ2.1-2007 10 g/ ³
 C =0.47 C -3.595

GB3838-2002 SS SL63-94
 4-2

	6 9	20	4	1.0	1.0	0.2	30	0.05
	GB3838-2002 SS (SL63-94)							

GB3096-2008 3 4-3

	3	55
	GB3096-2008	

1

(GB16297-1996) 2

GB/T3840-91

VOC

DB12/524-2014

GB14554-93

4-4

	9.0	15	0.10		0.02	(GB16297-1996)
	240	15	0.77		0.12	2
	/	/	/		25	GB/T3840-91
	/	42	4.38		0.4	
	/	42	4.38		0.4	
VOC	80	42	23.84		2.0	DB12/524-2014
	/	/	/		20	GB14554-93

[1]

(GB/T 3840-91)

$Q=C \cdot R \cdot K_e$
g/ ³ R

Q

g/h C

GB/T 3840-91 4 40

58 50

90 K_e

0.5 1.5

0.85

[2]

(GB16297-1996)7.3

[3]

GB8978-1996 4

GB/T31962-2015 1 B

(GB18918 2002) A

COD 40 gA

4-5

	6.9	6.9
	300	50
	150	10
	45	5
	20	/
	8	0.5

GB12348-2008 3

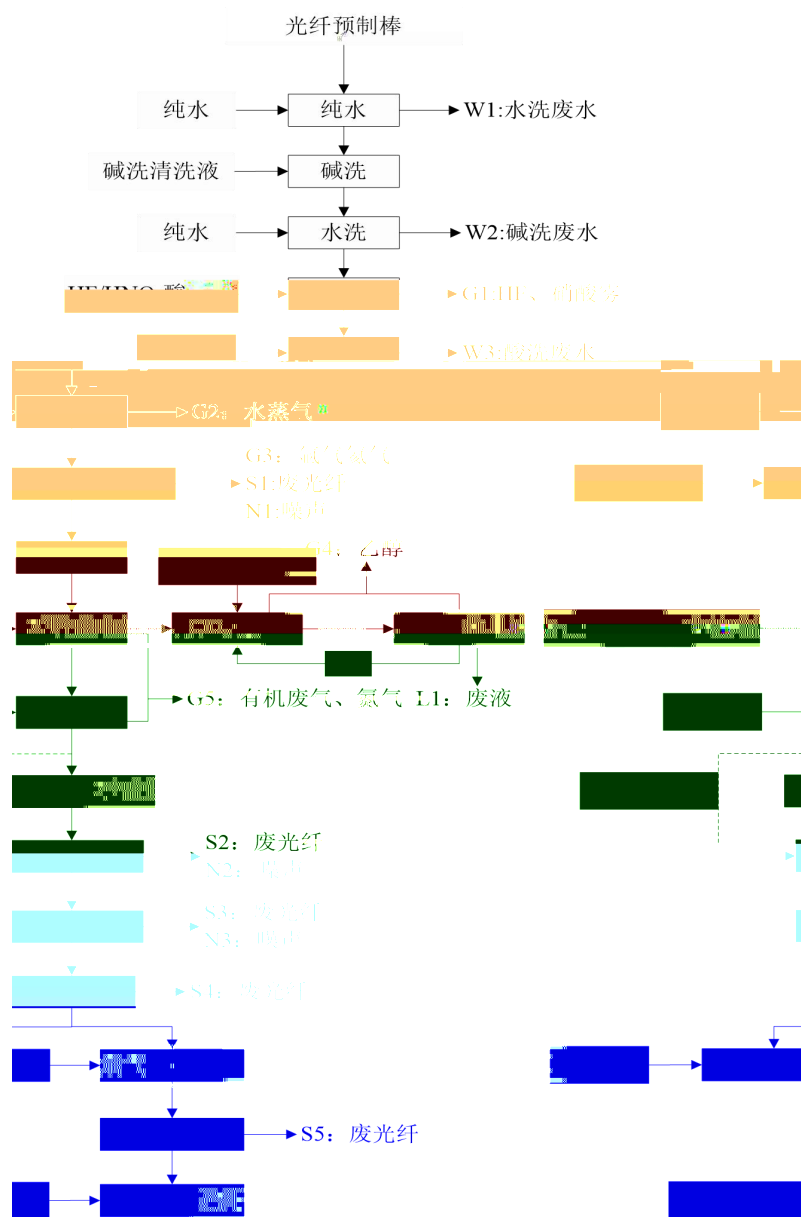
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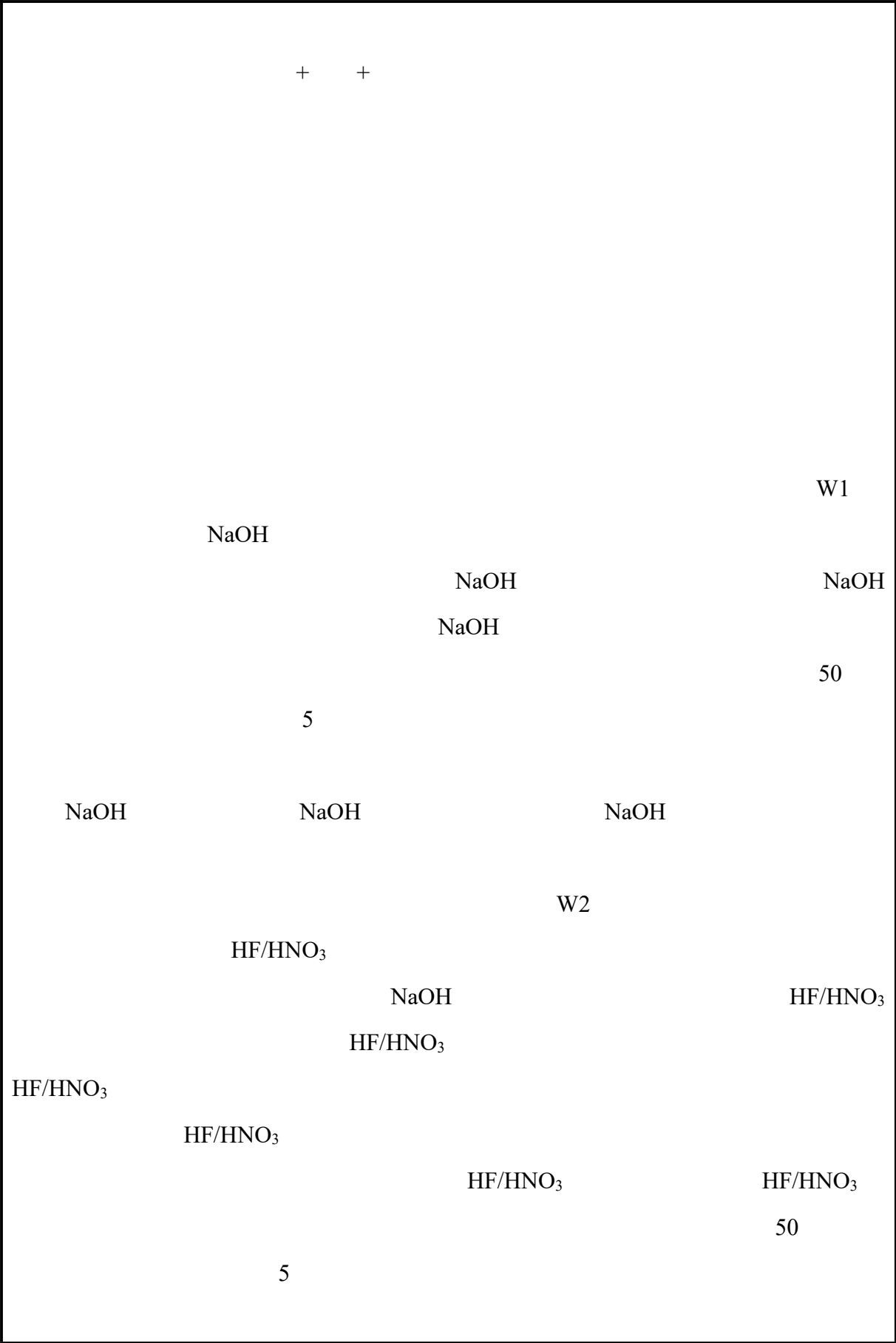
3	65	55	

GB18599-2001

GB18597-2001

HJ2025-2012





HF/HNO₃

HF/HNO₃

HF/HNO₃

HF/HNO₃

HF HNO₃

G1

HF/HNO₃

W3

G2

2200

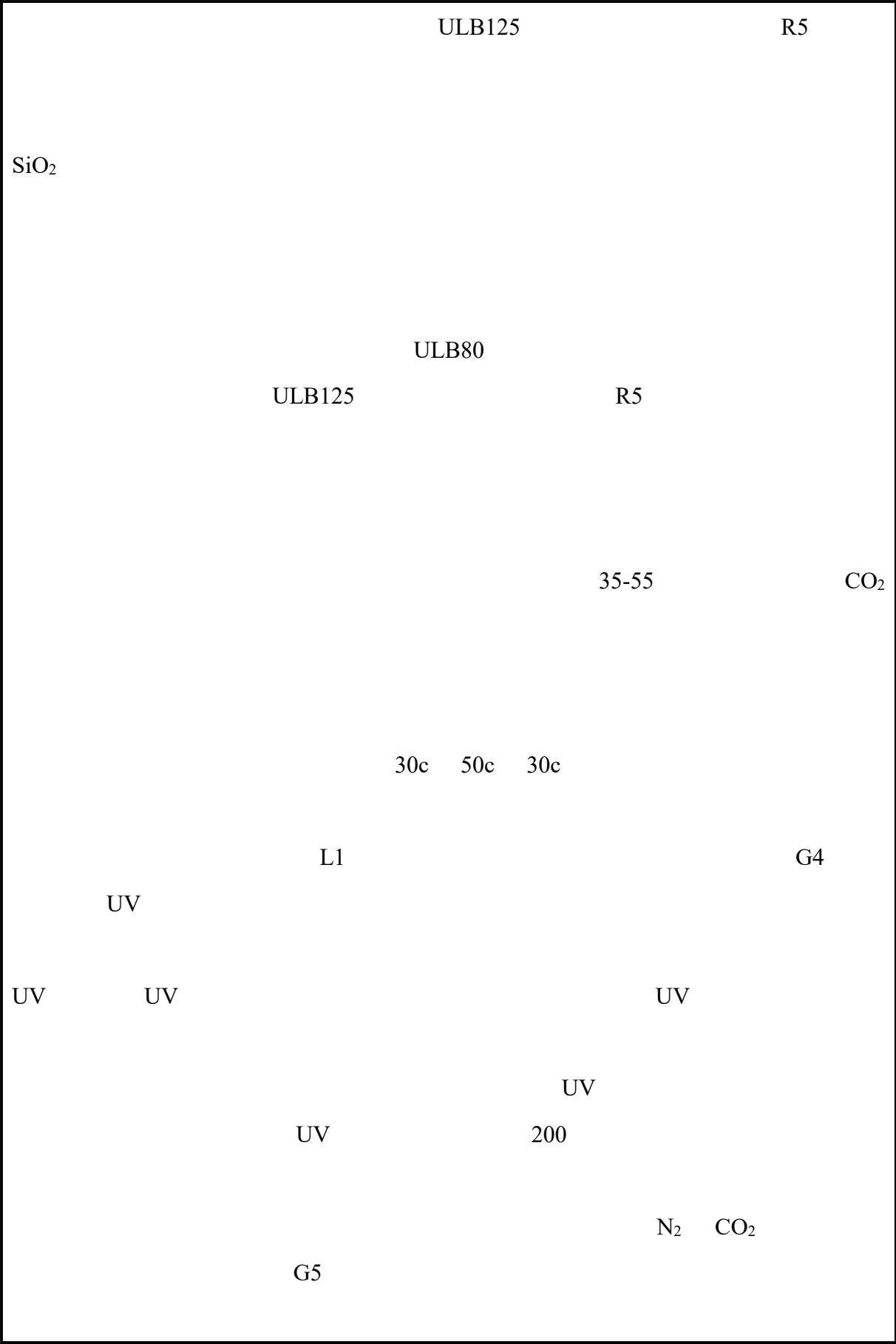
ULB80

G3

S1

N1

ULB80



PMD

PMD

ULB80

PMD

S2

N2

S3

N3

S4

OH-

ULB80

1.5%

ULB125

S5

5-1

	W1		PH COD SS		
	W2		PH COD SS		
	W3		PH COD SS		
	G1		HF		
	G2				
	G3				
	G4				
	G5				
	L1				
	S1				
	S2				
	S3				
	S4				
	S5				
	N1				/
	N2		Le A		/
	N3				/

R5

F

F

1360 -1450

ULB125

ULB80

2 UV

52-55

VOC ()

177 /a 40%

0.45% 0.45% 99.1%

0.2% VOC 1%

VOC 0.1416 /a 0.1416 /a

1.77 /a

UV UV

UV

UV

200

VOC ()

200

0.45% VOC

400

2017 021 1#

0.37 g/ ³ 0.00171 g/h

400

VOC 1.5%

VOC 0.3186 /a

0.3186 /a 2.655 /a

VOC	0.4602/a	0.4602 /a	4.4250 /a	
	98%			
VOC	0.4510 /a	0.4510 /a	4.3365 /a	90%
		VOC	0.04510 /a	0.04510 /a
0.43665 /a		0.00626 g/h	0.00626 g/h	0.06023 g/h
0.602 g/ ³	0.602 g/ ³	5.791 g/ ³		FQ3 42
		VOC	0.0092 /a	0.0092 /a 0.0885 /a
3				
	1000			
[2017]5				
	1000			
				2%
			0.0154 /a	
4	CO ₂			
	CO ₂			
			5-2 3 6	
			5-4 5 7	
50%			5-8	

	6000	HF	33.667	0.202	0.2420		97	1.008	0.0061	0.0073	9.0	0.15	15	0.4	25	1200	
			14.291	0.086	0.1029		70	4.287	0.0257	0.0310	240	1.2	15	0.4	25	1200	
	10400		6.023	0.0626	0.4510		90	0.602	0.00626	0.04510	/	4.38	42	0.4	25	7200	
			6.023	0.0626	0.4510			0.602	0.00626	0.04510	/	4.38	42	0.4	25	7200	
		VOC	57.913	0.6023	4.3365			5.791	0.06023	0.43365	80	23.48	42	0.4	25	7200	

	FQ1	6000	HF	2.56	0.015	0.1106		9.0	0.15				15	0.4	25	7200	
				4.11	0.025	0.1777		240	1.2								
	FQ2	10400		2.49	0.026	0.1865		/	4.38				42	0.4	25	7200	
				2.49	0.026	0.1865		/	4.38								
			VOC	32.01	0.333	2.3966		80	23.48								
	FQ3	9000		1.65	0.015	0.0178		2.0	/				/	/	/	1200	

	HF	0.00034	0.00244	15	8	8	7200
		0.0001	0.0010				
		0.0013	0.0092	68	12	15	
		0.0013	0.0092				
	VOC	0.0123	0.0885				
		0.0021	0.0154	4	5	8	

	HF	0.0102	0.0731	120	8	7200
		0.0044	0.0319			
		0.0053	0.0382	720	15	
		0.0053	0.0382			
	VOC	0.0679	0.4891			
		0.0902	0.6498	20	8	

1	FQ1	HF	1.008	0.0061	0.0073
2			4.287	0.0257	0.0310
3	FQ3		0.602	0.00626	0.04510
4			0.602	0.00626	0.04510
5		VOC	5.791	0.06023	0.43365
					0.56198
1	/	/	/	/	/
					/
		HF			0.0073
					0.0310
					0.04510
					0.04510
		VOC			0.43365
					0.56198

1			HF	(GB16297-1996) 2	0.02	0.0024
2					0.12	0.0010
3					0.4	0.0092
4					0.4	0.0092
5			VOC		2.0	0.0885
6					25	0.0154

1		50%	HF	17.3077	0.104	0.25	0.1	
2				9.289	0.056			
3				3.313	0.034			
4				3.313	0.034			
5			VOC	31.852	0.331			

3792.5 /a

+

(GB18918 2002)

A

1

4500 /a

140.1 /a

1800 /a

0.67%

W1 W3

1788 ³/a

H SS

2

112.5 /a

10%

101.3 /a

H SS

3

1 2 /h

1800 /a

40 /a

1840 /a

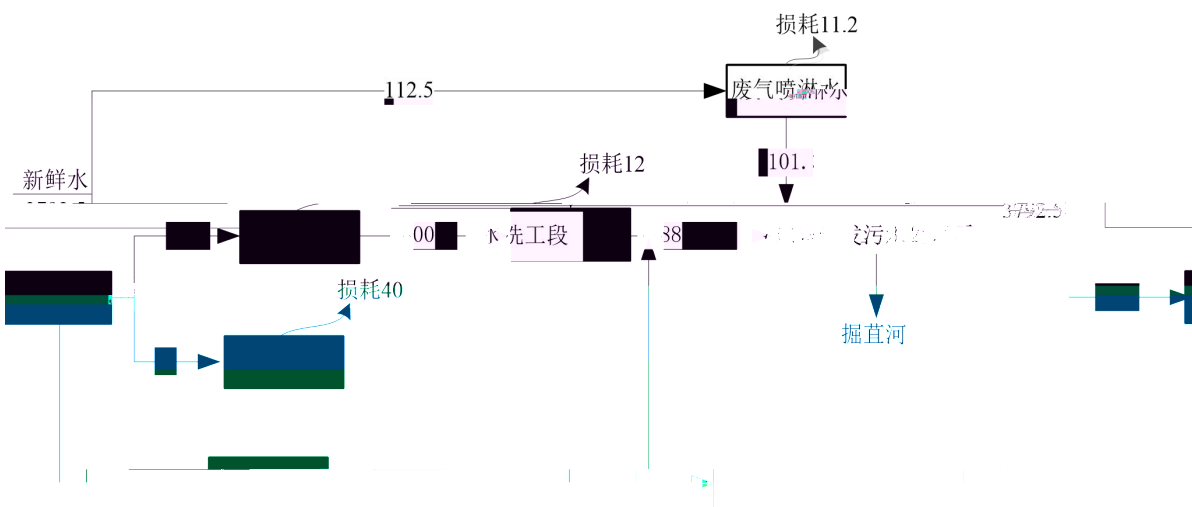
50%

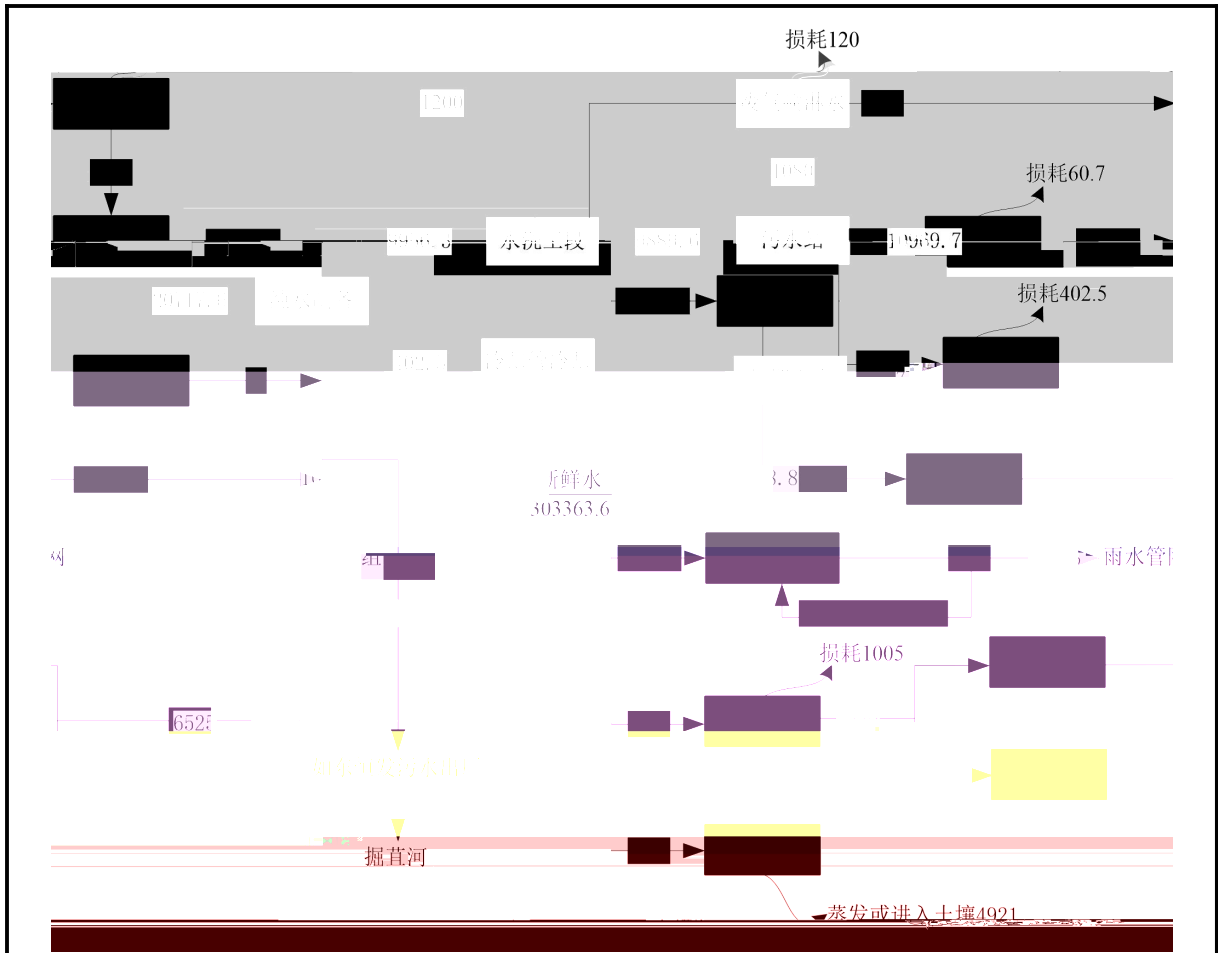
3680 /a

1840 /a

H SS

	1840	COD	80	0.1472		COD	80	0.1472
		SS	200	0.3680		SS	200	0.3680
			800	1.4720			800	1.4720
	1788	COD	80	0.1430	+	COD	80	0.1511
		SS	120	0.2146		SS	20	0.0378
			716	1.2802			17.2	0.0325
	101.3	COD	80	0.0081		/	/	/
		SS	130	0.0132		/	/	/
			2037	0.2062		/	/	/
	3729.3	COD	80	0.2983	+	COD	80	0.2983
		SS	160	0.5958		SS	109	0.4058
			399	1.4864			8.7	0.0325
			395	1.4720			395	1.4720





1		COD SS			/			DW 001	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

1	DW001	121.15 3788	32.3456 56	3729.3			/		H 6 9 COD 50 SS 10 5 / 0.5

1	DW001		PH COD SS NH ₃ -N	GB8978-1996 GB/T 31962-2015	6 9 300 150 20 45

1	DW001		/	12.43	89.74	3729.3	26922.4
		COD	80	0.0010	0.0117	0.2983	3.5123
		SS	109	0.0014	0.0111	0.4058	3.3388
			8.7	0.0001	0.0001	0.0325	0.0365
			395	0.0049	0.0274	1.4720	8.2050
			35	0	0.0006	0	0.1928
		TP	4	0	0.0001	0	0.0230
			25	0	0.0002	0	0.0720

RO

1

2.8 /a

2

RO

RO

0.1 /a

RO

0.05 /a

3

2 /a

5

0.07 /a

6

0.01 /a

7

0.04 /a

5-11

					/a
1					2.80
2					0.1
3	RO			RO	0.05
4					2
5					0.07
6					0.04
7					0.01
					5.07

1

GB34330-2017

2018 18

5-12

1						4.1-(a)	5.1-(c)
2						4.3-()	5.1-(a)/(b)
3	RO			RO		4.3-()	5.1-(a)/(b)
4						4.2-(e)	5.1-(c)
5						4.1-(h)	5.1-(a)/(b)
6						4.1-(h)	5.1-(a)/(b)
7						4.1-(c)	5.1-(e)

5-13

5-14

1		HW11	900-013-11	0.07				
2		HW08	900-218-08	0.01				
3		HW49	900-041-49	0.04				
4		HW49	900-041-49	0.1				
5	RO	HW49	900-041-49	0.05			RO	
6		/	/	2				
				2.27				

1					2.80		
	/	/	/	/	2.80	/	

75 80dB A

5-15

1		3	85		60		25
2		3	85		52		25
3		3	75		52		25
4		3	80		50		25

5-16

0.2420	0.2347	0.0073	0.0073
0.1029	0.0720	0.0310	0.0310
0.4510	0.4059	0.04510	0.04510
0.4510	0.4059	0.04510	0.04510
4.3365	3.9029	0.43365	0.43365
0.00244	0	0.00244	0.00244
0.0010	0	0.0010	0.0010
0.0092	0	0.0092	0.0092
0.0092	0	0.0092	0.0092
0.0708	0	0.0708	0.0708
0.0015	0	0.0015	

		HF	0.3820	0.0073	0.2790	0.1103	-0.2717
			0.1620	0.0309	0.0150	0.1779	+0.0159
			0.1560	0.04510	0.0150	0.1861	+0.0301
			0.1560	0.04510	0.0150	0.1861	+0.0301
		VOC	2.1660	0.43665	0.2030	2.3967	+0.2307
			0.0178	0	0	0.0178	0
		^{3/a}	19493.76	3729.25	1820.60	21402.41	+1908.65
		COD	1.5600	0.2983	0.1460	1.7123	+0.1523
		SS	1.8720	0.4058	0.1750	2.1028	+0.2308
			0.0044	0.0325	0.0004	0.0365	+0.0321
			7.4270	1.4720	0.6940	8.2050	+0.7780
		^{3/a}	5520	0	0	5520	0
		COD	1.8000	0	0	1.8000	0
		SS	1.2360	0	0	1.2360	0
			0.1928	0	0	0.1928	0
		TP	0.0230	0	0	0.0230	0
			0.0720	0	0	0.0720	0
		^{3/a}	25013.76	3729.25	1820.60	26922.41	+1908.65
		COD	3.3600	0.2983	0.1460	3.5123	+0.1523
		SS	3.1080	0.4058	0.1750	3.3388	+0.2308
			0.1928	0	0	0.1928	0
		TP	0.0230	0	0	0.0230	0
			0.0044	0.0325	0.0004	0.0365	0
			7.4270	1.4720	0.6940	8.2050	+0.7780
			0.0720	0	0	0.0720	0
			0	0	0	0	0
			0	0	0	0	0
			0	0	0	0	0

		HF	33.667	0.202	0.2420	1.008	0.0061	0.0073	FQ1
			14.291	0.086	0.1029	4.287	0.0257	0.0310	
		VOC	6.023	0.0626	0.4510	0.602	0.00626	0.04510	FQ3
			6.023	0.0626	0.4510	0.602	0.00626	0.04510	
			57.913	0.6023	4.3365	5.791	0.06023	0.43365	
	HF	/	0.00034	0.00244	/	0.00034	0.00244		
		/	0.0001	0.0010	/	0.0001	0.0010		
		/	0.0013	0.0092	/	0.0013	0.0092		
		/	0.0013	0.0092	/	0.0013	0.0092		
		VOC	/	0.0123	0.0885	/	0.0123		0.0885
		/	0.0002	0.0015	/	0.0002	0.0015		
			3729.3	/		3729.3	/		
		COD	0.2983	80	COD	0.2983	80		
		SS	0.5958	160	SS	0.4058	109		
			1.4864	399		0.0325	8.7		
			1.4720	395		1.4720	395		
			2.80	2.80	0	0			
			0.1	0.1	0	0			
		RO	0.05	0.05	0	0			
			2	2	0	0			
			0.07	0.07	0	0			
			0.04	0.04	0	0			
			0.01	0.01	0	0			
			/						

CO₂

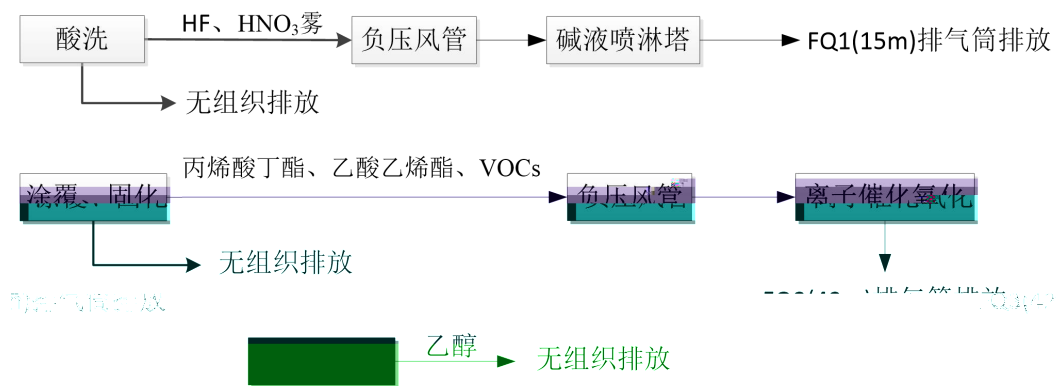
	HF	
	VOC	

FQ1 15

FQ3 42

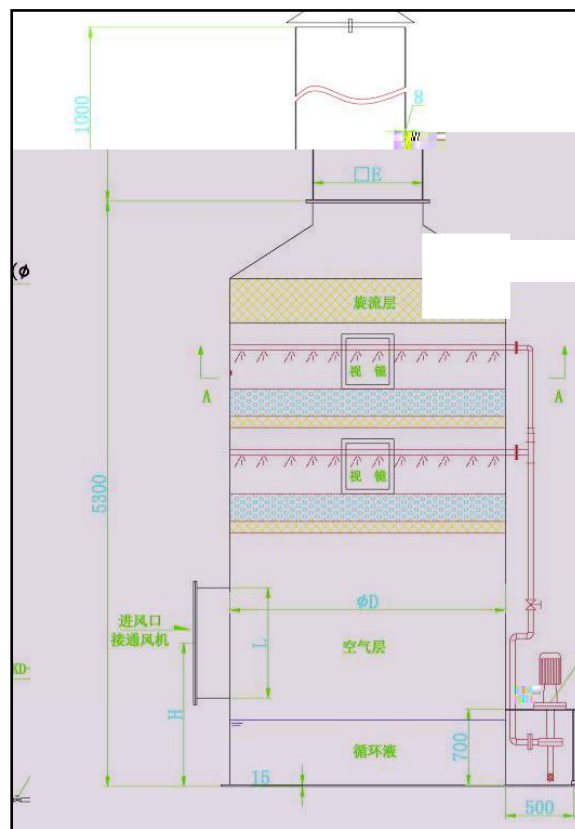
HF

VOC

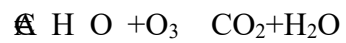
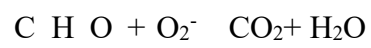
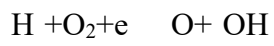
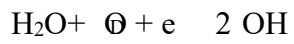
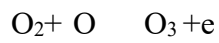
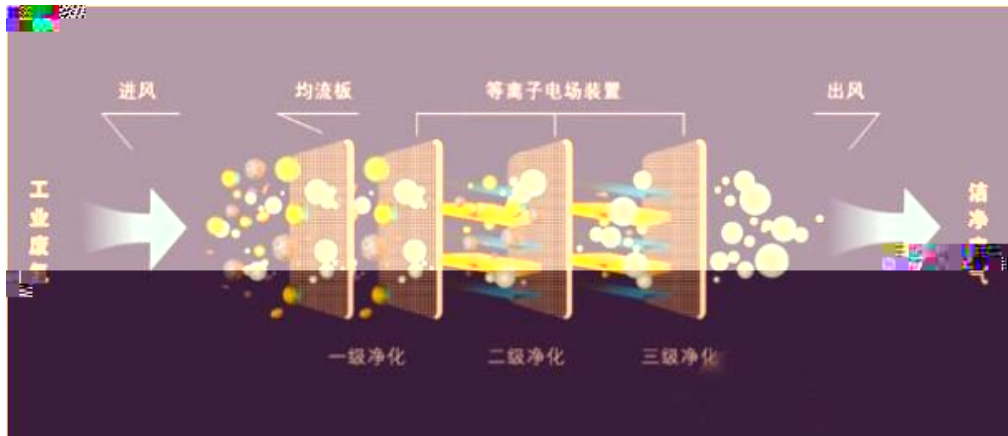


PH

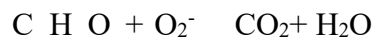
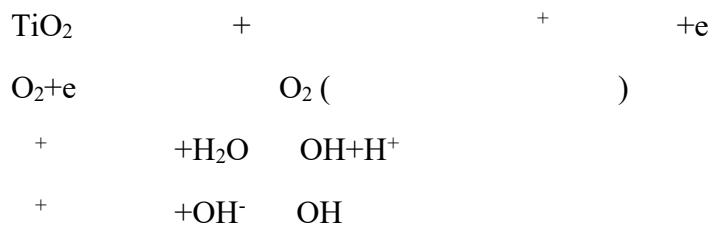
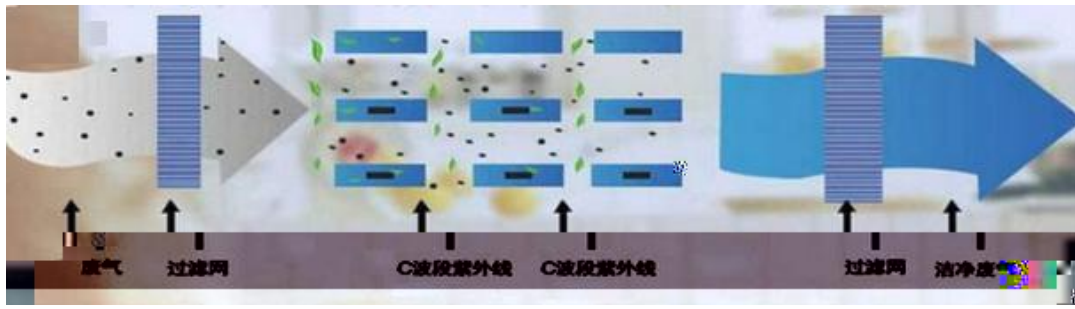
7-2



7-2



H₂O CO₂



1	/	1	2	560	1780	1270	1
		3			304		
		4			PLC		
		5			200 - 300 Pa		
2		1					
		2		850	1780	1270	
		3			304		
		4			5 W		
		5				60	
		6			PLC		
		7			200 - 300 Pa		
		9			2.2 / ,		
		1.8					

3		1 2 3 930 1780 1270 4 5 304 6 12 W 7 PLC 8 100 - 200 Pa 9 90 1.8 2.2 / ,	1
4		12000 ³ /h 2000Pa 7.5KW	1
5		PP 10	1
6			1

VOC

0.776 g/ ³ 2.90 10⁻³Kg/h 412

DB12/524-2014

10

37

FQ1 15 FQ3 42

GB16297-1996

HJ2.2-2018

AERSCREEN

HF			20.0	GB3095-2012
			250.0	GB3095-2012
			270.0	(HJ611-2001) C
			2000.0	DB13/1577-2012
			80.0	
			80.0	
			5000.0	CH245-71

/			/	
		/		40.0 C
		/		-10.0 C
			/	/
			/	
			/	

1	FQ 1	121.15 0616	32.347 673	2	15	0.4	11	25	72 00		0.0 15	0.0 25	/	/	/
2	FQ 3	121.15 0067	32.347 446	2	24	0.4	11	25	72 00		/	/	0.02 6	0.02 6	0.33 3

1		121. 1497 72	32. 347 728	2	15	8	-	8	72 00		0.00 034	0.00 01	/	/	/	/
2		121. 1498 73	32. 347 386	2	12	68	-	15	72 00		/	/	0.0 013	0.0 013	0.0 098	/
3		121. 1498 61	32. 347 182	3	5	4.	-	8	72 00		/	/	/	/	/	0.0 123

AERSCREEN

50.0	0.9595	4.8	1.5991	0.64
100.0	1.3994	7.0	2.3323	0.93
200.0	1.379	6.89	2.2983	0.92
300.0	1.1925	5.96	1.9875	0.79
400.0	0.9491	4.75	1.5818	0.63
500.0	0.7618	3.81	1.2697	0.51
600.0	0.7364	3.68	1.2273	0.49
700.0	0.7013	3.51	1.1689	0.47
800.0	0.6572	3.29	1.0954	0.44
900.0	0.6116	3.06	1.0193	0.41
1000.0	0.5677	2.84	0.9461	0.38
1200.0	0.5154	2.58	0.8589	0.34
1400.0	0.47	2.35	0.7833	0.31
1600.0	0.4273	2.14	0.7121	0.28
1800.0	0.3888	1.94	0.648	0.26
2000.0	0.3548	1.77	0.5913	0.24
2500.0	0.3054	1.53	0.509	0.2
	1.4679	82	7.34	2.4465
			82	0.98
		/		/

50.0	0.7657		0.7657	
100.0	1.9615		1.9615	
200.0	1.3565		1.3565	
300.0	0.9882		0.9882	
400.0	0.7919		0.7919	
500.0	0.668		0.668	
600.0	0.6143		0.6143	
700.0	0.5787		0.5787	
800.0	0.537		0.537	
900.0	0.4953		0.4953	
1000.0	0.4563		0.4563	
1200.0	0.3888		0.3888	
1400.0	0.3345		0.3345	
1600.0	0.3033		0.3033	
1800.0	0.286		0.286	
2000.0	0.2811		0.2811	
2500.0	0.2596		0.2596	
	1.9628 98	2.45	1.9628 98	2.45
	/		/	
50.0	9.8059		0.49	
100.0	25.122		1.26	
200.0	17.372		0.87	
300.0	12.657		0.63	
400.0	10.142		0.51	
500.0	8.5549		0.43	
600.0	7.8675		0.39	
700.0	7.4113		0.37	
800.0	6.8771		0.34	
900.0	6.344		0.32	
1000.0	5.8444		0.29	
1200.0	4.9791		0.25	
1400.0	4.2842		0.21	
1600.0	3.8849		0.19	
1800.0	3.6631		0.18	
2000.0	3.6003		0.18	
2500.0	3.3244		0.17	
	25.138 98		1.26	
	/			

50.0	0.4876	2.44	0.1434	0.06
100.0	0.3145	1.57	0.0925	0.04
200.0	0.2066	1.03	0.0608	0.02
300.0	0.1635	0.82	0.0481	0.02
400.0	0.1384	0.69	0.0407	0.02
500.0	0.1215	0.61	0.0357	0.01
600.0	0.1091	0.55	0.0321	0.01
700.0	0.0915	0.46	0.0269	0.01
800.0	0.0849	0.42	0.025	0.01
900.0	0.0793	0.4	0.0233	0.01
1000.0	0.0701	0.35	0.0206	0.01
1200.0	0.0629	0.31	0.0185	0.01
1400.0	0.057	0.29	0.0168	0.01
1600.0	0.0522	0.26	0.0153	0.01
1800.0	0.0481	0.24	0.0142	0.01
2500.0	0.0407	0.2	0.012	0.0
	1.2708 9	6.35	0.3738 9	0.15
	/		/	
50.0	0.6222	0.78	0.6222	0.78
100.0	0.6395	0.80	0.6395	0.80
200.0	0.3991	0.50	0.3991	0.50
300.0	0.2979	0.37	0.2979	0.37
400.0	0.2425	0.30	0.2425	0.30
500.0	0.2069	0.26	0.2069	0.26
600.0	0.1818	0.23	0.1818	0.23
700.0	0.163	0.20	0.163	0.20
800.0	0.1483	0.19	0.1483	0.19
900.0	0.1364	0.17	0.1364	0.17
1000.0	0.1267	0.16	0.1267	0.16
1200.0	0.1114	0.14	0.1114	0.14
1400.0	0.0999	0.12	0.0999	0.12
1600.0	0.091	0.11	0.091	0.11
1800.0	0.0837	0.10	0.0837	0.10
2000.0	0.0778	0.10	0.0778	0.10
2500.0	0.0665	0.08	0.0665	0.08
	0.6533 88	0.82	0.6533 88	0.82
	/		/	

50.0	5.888	0.29	3.0627	0.06
100.0	6.0513	0.3	1.9549	0.04
200.0	3.7765	0.19	1.2818	0.03
300.0	2.8188	0.14	1.0101	0.02
400.0	2.2946	0.11	0.8549	0.02
500.0	1.9576	0.1	0.7506	0.02
600.0	1.7201	0.09	0.6738	0.01
700.0	1.5421	0.08	0.5652	0.01
800.0	1.4032	0.07	0.5245	0.01
900.0	1.2912	0.06	0.4897	0.01
1000.0	1.1987	0.06	0.4331	0.01
1200.0	1.0541	0.05	0.3886	0.01
1400.0	0.9457	0.05	0.3524	0.01
1600.0	0.8609	0.04	0.3223	0.01
1800.0	0.7924	0.04	0.2974	0.01
2500.0	0.7359	0.04	0.2513	0.01
	6.1827 88	0.31	15.082 4	0.3
	/		/	

FQ1

HF 1.4679 g/ ³ 7.34%

2.4465 g/ ³ 0.98% FQ2

25.138 g/ ³ 1.26% 1.9628 g/ ³

2.45% 1.9628 g/ ³ 2.45%

HF 1.2708 g/ ³ 6.35%

0.3738 g/ ³ 0.15%

0.6533 g/ ³ 0.82%

0.6533 g/ ³ 0.82%

6.1827 g/ ³ 0.31%

15.082 g/ ³ 0.3% HJ/2.2-2018

	P a 10%
	1% P a 10%
	P a 1%

$$\frac{Q_c}{C_m} = \frac{1}{A} (BL^C + 0.25r^2)^{0.50} L^D$$

Q_c g/h C
g/ 3 L

A B C D

7-10

		L 1000			1000 L 2000			L 2000		
A	<2	400	400	400	400	400	400	80	80	80
	2-4	700	470*	350	700	470	350	380	250	190
	>4	530	350	260	530	350	260	290	190	140
B	<2	0.01			0.015			0.015		
	>2	0.021*			0.036			0.036		
C	<2	1.85			1.79			1.79		
	>2	1.85*			1.77			1.77		
D	<2	0.78			0.78			0.57		
	>2	0.84*			0.84			0.76		

*

	HF	3.067	50	100
		0.036	50	
		0.938	50	
		0.938	50	
	VOC	0.295	50	
		0.110	50	

Q_c/C

100 50 100 1000 100

Qc/C

100

100

100

100

8

		=50	5 50			=5
	SO ₂ +NO	2000 /a	500 2000 /a			500 /a
		HF /		PM _{2.5} PM _{2.5}		
				D		
			2017			
		AERMOD	ADMS	AUSTAL2000	EDMS/AED T	CALPUFF
		50	5 50			=5

-

HJ2.3-2018

		Q 20000 W 60000
A		Q 200 W 6000
B		-

3792.5 ³/a

COD SS

5.98 ³/d

B B

H SS

18 CaF₂ 15.6 g/L F⁻ 7.6 g/L

F⁻ 7.6 g/L Ca⁺

CaF₂ < > Ca²⁺ + 2F⁻ CaF₂

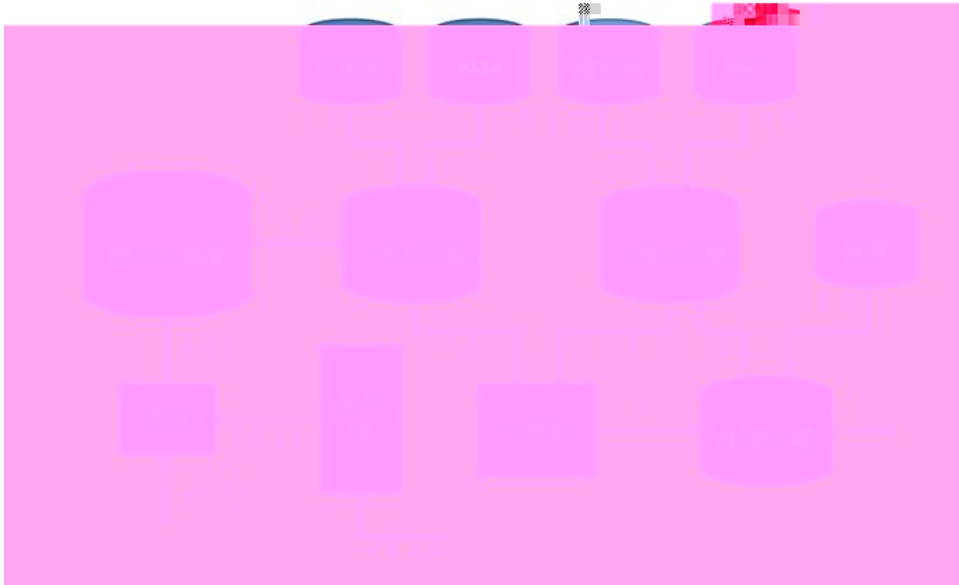
F⁻ PAC

PAM CaF₂ 100 g/L

48 /d

17 /d

31 /d



1

PH

2

PH : PH

6

2 3 /

0.5 1.5 /

1 /

UPVC

7

HF

4.345 g/L

GB8978-1996

7 ³/d

3 ³/d

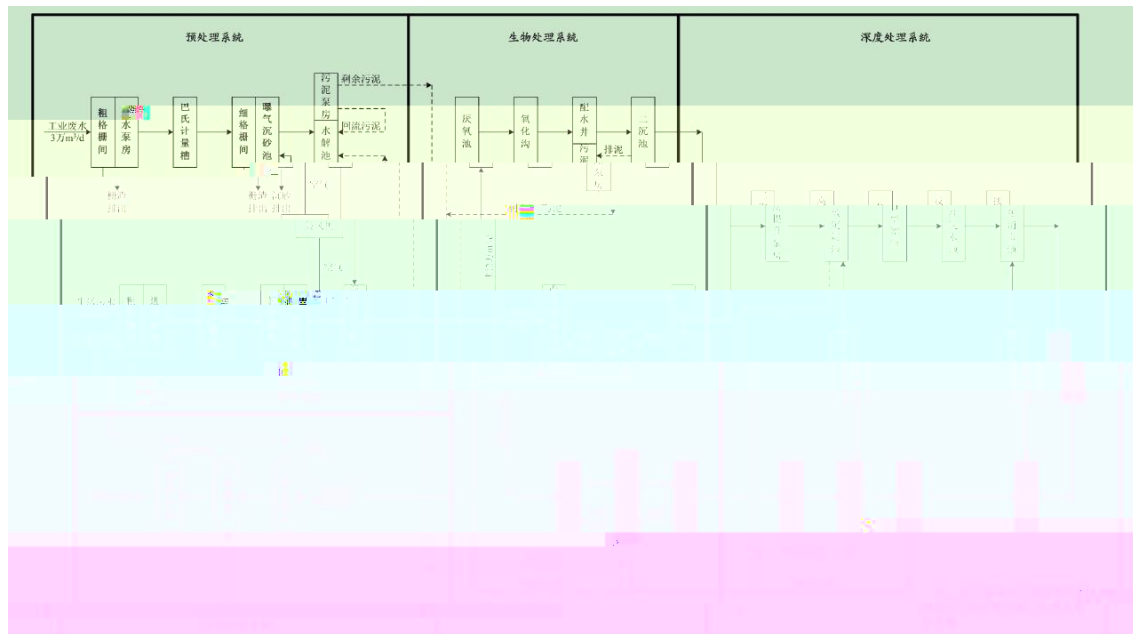
4 ³/d

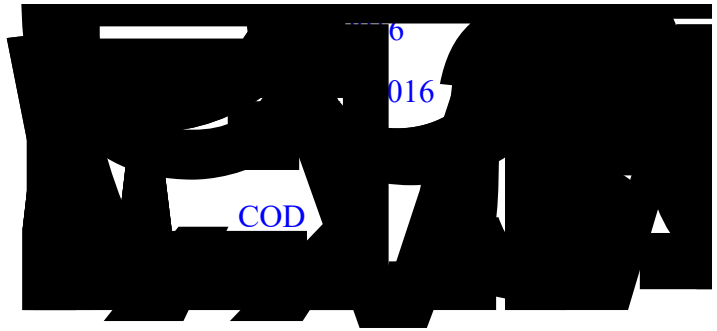
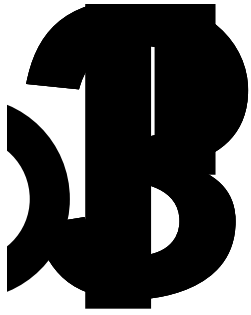
3 ³/d

1 ³/d

2 ³/d

2017 38





6
016

COD



Ä\ N©

1	
2	Mb 1.5 K 10 ⁻⁷ c /
3	
4	
5	Mb 6.0 K 10 ⁻⁷ c /
6	

GB18597-2001

7-17

1			HW12	264-013-12		6 ²	
2			HW08	900-218-08			
3			HW49	900-041-49			
4			HW49	900-041-49			
5		RO	HW49	900-041-49			
6			/	/			

HJ 2025-2012

a

GB18599-2001

b

RO

8

c

75 85dB A

25dB(A)

a

$$L_{eq} = 10 \lg \left(\sum_i 10^{0.1 L_{Ai}} \right)$$

L_{eq} dB(A)

L_{Ai} dB(A)

T

b

$$L_{eq} = 10 \lg (10^{0.1 L_{eqa}} + 10^{0.1 L_{eqb}})$$

L_{eq} dB(A)

L_{eqb} dB(A)

7-18

1			11.21	17.59	19.49	24.43
2			12.88	17.52	16.54	25.68
3			3.42	8.56	9.02	15.58
4			7.51	11.71	12.39	21.02
			16.1	21.3	22.0	29.1
			54.3	53.6	54.4	53.2
			48.6	48.4	49.6	48.5
			53.8	53.6	54.3	53.8
			48.9	48.3	47.8	47.6
			57.1	56.6	57.4	56.5
			51.76	51.4	51.8	51.1
			65	65	65	65
			55	55	55	55

GB3096-2008 3

[C3832]

HJ 964-2018 A

IV

(HJ964-2018)

4.2.2 IV

GB18597-2001

1	HF	120	/	/	LC ₅₀ 1044	/	/	
2	HNO ₃	86	/	/	/	/	/	
3		/	/	/	LD ₅₀ 500-5000	/	/	/
4		78.3	12	3.3/19.0	83776/5628		/	/
5		-195.6	/	/	/	/	/	/
6		-185.7	/	/	/	/	/	/
7		-268.9	/	/	/	/	/	/
8		-249.5	/	5/75	/		/	/
9		-78.5	/	/	/	/	/	/

HF

(HJ/T169-2018) A.1

A.

HF /HNO₃

B.

1

2

3

	+			
				a
a				

P

HJ169-2018

B

HF HNO₃

Q

7-21

1	HF	7664-39-3	0.8	1	0.8
2	HNO ₃	7697-37-2	0.4	7.5	0.0533
3		141-32-2	0.0144	10	0.00144
Q					0.85474

Q

Q 1

Q

E.

7-23

/HF

/HF

/HF

320623-2017-049-L

	FQ1	HF	
	FQ3		VOC
		HF	VOC

	H COD SS	
	COD SS	

1	A	

a.

H COD SS

3

500

500

1500

b.

HF

VOC

1

15000

0.13%

		FQ1	HF	+15	(GB16297-1996) 2
		FQ3		+42	GB/T3840-91
			VOC		DB12/524-2014
			HF VOC		
			COD SS	+	
			COD SS		
			COD SS		
			RO		

		FQ1	HF	+15	(GB16297-1996) 2
		FQ3		+42	GB/T3840-91
			VOC		DB12/524-2014
		COD SS			+ (GB18918 2002) A
					25dB
			RO		

		/	
	RO	HF	97%

2012

2012

2012

2012

2012 5 23

3

RO

RO

4

0.0159 /a

0.0301 /a

0.0301 /a VOC

0.2307 /a

HF

+

1908.65 /a COD

0.1523 /a SS 0.2308 /a 0.0321 /a 0.7780 /a

1908.65 /a COD 0.1523 /a SS 0.2308 /a 0.0321 /a 0.7780 /a

RO

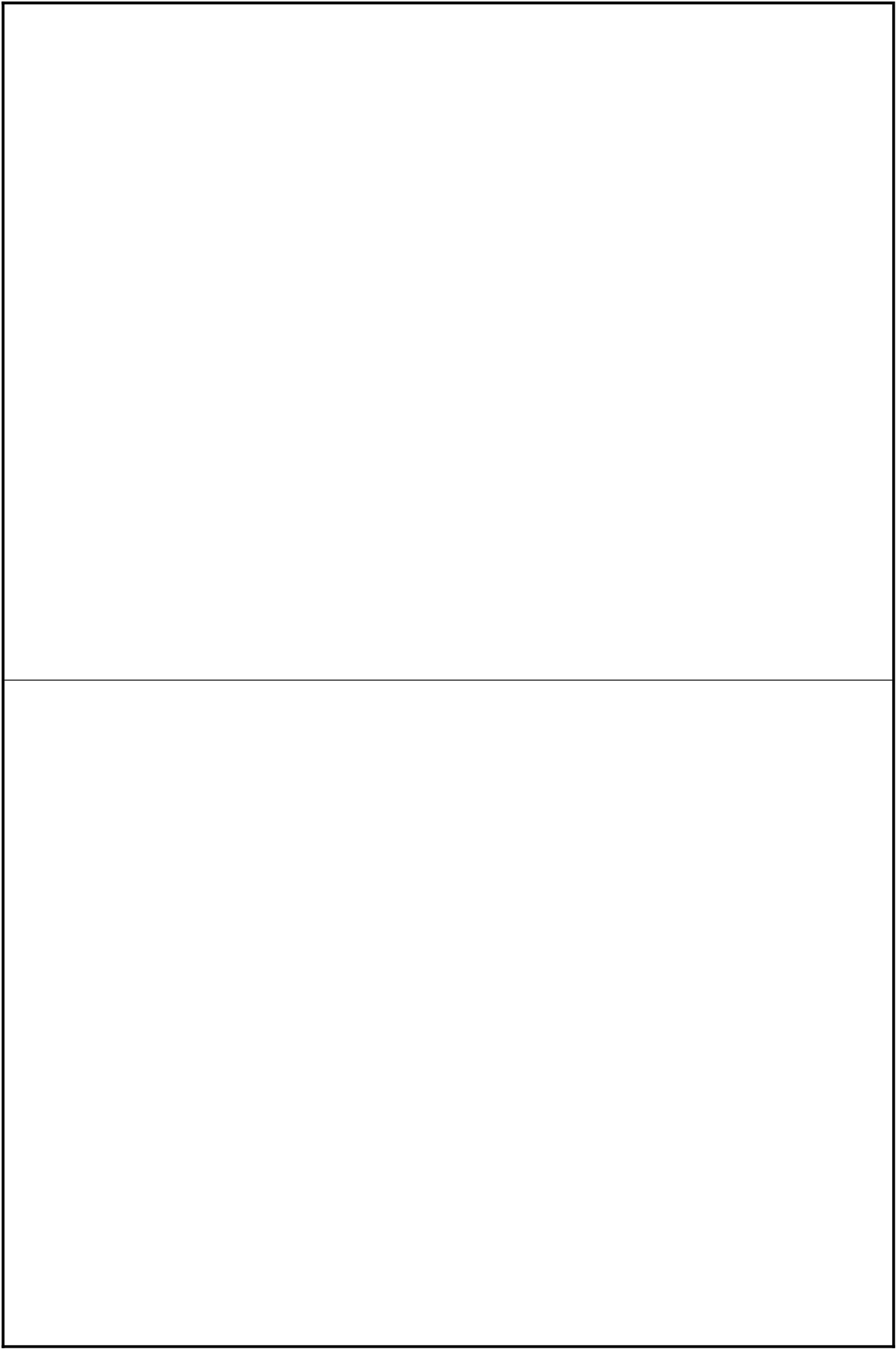
1

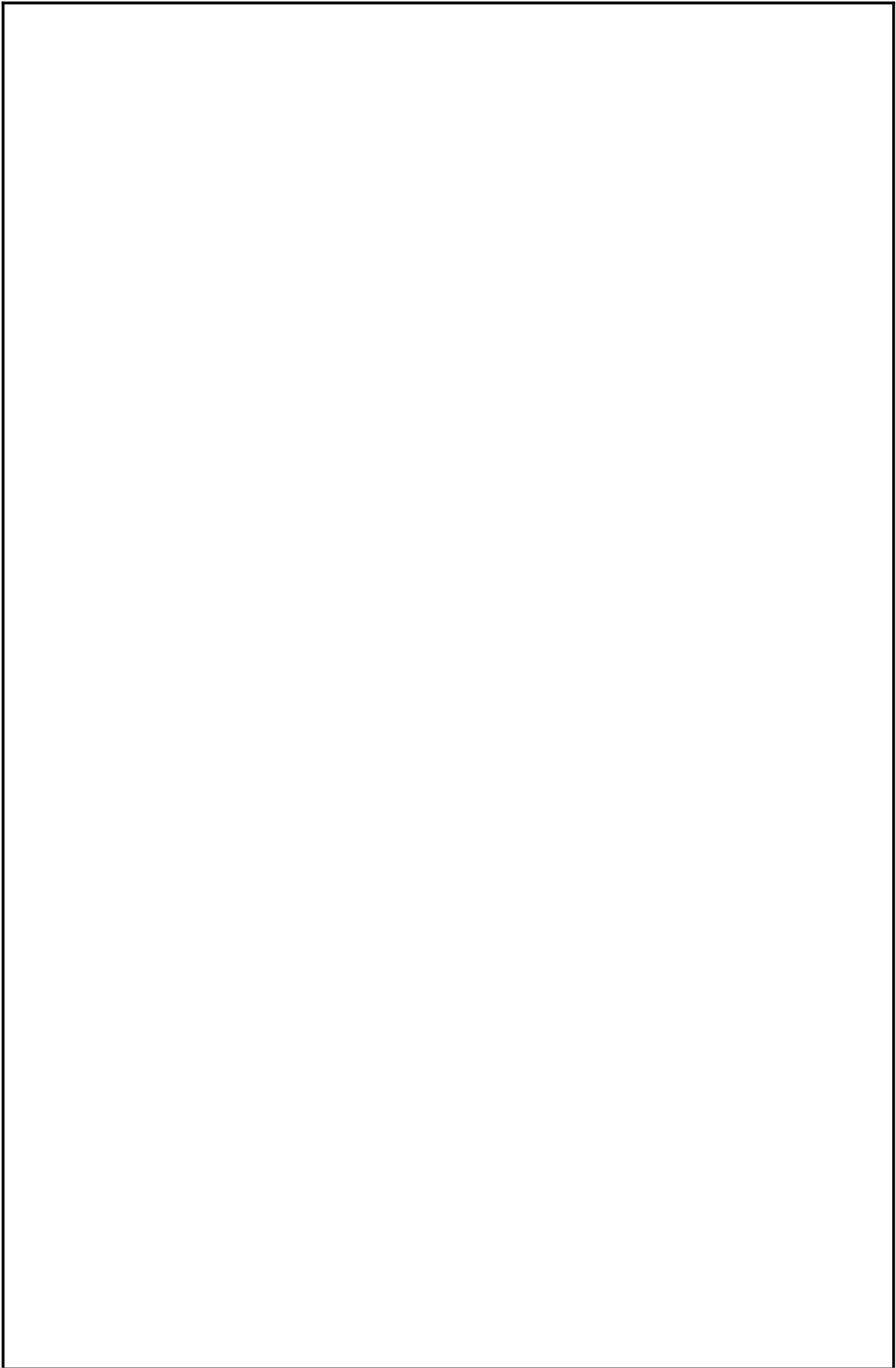
2

3

4

(GB/T18883-2002)





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