JSEP
江苏省环保集团

1.1 1
1.2 2
1.3 3
1.4 3
1.5 4
1.6 41
1.7 41

2.1 42
2.2

ǪÐ -

...ĎŎŎ

4.7 “ ”........ 181
4.8 182

5.1 192
5.2 195
5.3 223

6.1 224
6.2 229

7.1 294
7.2 294
7.3 302
7.4 302
7.5 303

8.1 .5 304
8.2 318
8.3 319
8.4 324
8.5 325
8.6 327
8.7 336
8.8 344
8.9 “

11.8 377
11.9 377
11.10 377

1993

130 100 /

100 /

2022 1 24 [2022]37

2020

10.4% 30% 70% 50%

1

[2021]627 1 100 100 /

1 130 100 / 1:1

2 1 130t 2 130tLF

1 130tRH 1 100t 100tLF

3

[2018]13

HJ2.1-2016

1.4-1

2019

1.5-1

[2022]37

[2016]6

[2013]41

1.

2. 3.

[2016]170

[2013]41

2011 2013

21 2015 2015 35

[2021]627 1 130 100 /

1 100 100 / 1:1

2022 1 24 [2022]37

[2016]6 [2016]170

2016-2020 [2016]358

“

2016 400

30 30

…

”

1 130 1 100

2016-2020

1 100t 1 130tConsteel

100 /

2015 1 130 Consteel

1 100

1 100 1:1 1 × 130tConsteel

100 / 7-

2022

4. L1 L2
L3 L4 L1 L2

5. 2011
21
2010 [2010] 122

GB13456 GB12348-2008

COD ≤50 /

≤30 / ≤5 /

GB18599

GB18597

GB12348

3. 91320322736512738W001P

4. HJ878-2017

1.

1.	GB/T28001-2011/ISO 45001:2016	
2.		

10% ……

94%

98%

[2021]45

[2020]28

[2019]36

[2020]225

[2022]6

[2020]36

< >

[2019]75 [2020]101

1.5-4~ 1.5-19

	(“1+3” 2020	1 100t 100 / 1 130t 100 / 1:1	
	(10 20 $600m^3$ 50 (2020 40 $500m^3$ 45 2020	[2019]35 [2018]13	

2021 311 Ã
312 313 252

GB 28662
GB 28663
GB 28664
GB 28665

GB/T 50934

“ ”

GB 18597 GB 18597 GB 18599
GB 18598
GB 18599
GB 18484

GB 12348

[2020]36		
[a]	[1996]470 [1997] 122 [2021]3 SO_2 NO_X	

14		

17

18 LF RH

19

12. < 2022 >		
18.	2019	
19.		

9.

PM_{10}

PM_{10} $PM_{2.5}$

-20%

…… ……	/ +Đ Ä LF RH, È Ä	

<©JÒJñ

1 J +X'd õ N-L”

		2021 GB3095-2012	

1Ñ̃™

1\ 0(™J

1

2016 2030

2016 2030

2 2017-2030

11.39

11.01

ŋ̃

5⁄8 ≠ Ÿ 5⁄8 8 í

1

2

7		
8		

[2020]49 <

> [2020]94

1.5-21~1.5-22 “ ”

[2020]49 < > [2020]94

1.5-3 1.5-4

	[2020]1 [2018]74	21km [2020]1	

23216.24
22.49% 8474.27 [2018]74
8.21% 14741.97 14.28%

320322-2021-065-M

2020 ......
90%

	2	320322-2021-065-M	
	3 4 “)” 1) 2 3 4 ( ) 6		

	VOCs	VOCs	
	VOC_S		
		320322-2021-065-M $1050m^3$	

18150.34 13.14%

8474.27 8.21%

9676.07 27.83%

15

811 23216.24

22.49% 8474.27

8.21% 14741.97

14.28%

21km

1.5-23

1.5-5

			95.30	

2021 2021

$PM_{2.5}$ 42 / PM_{10} 75 /

SO_2 9 / NO_2 32 /

CO 1.2 / O_3 156 / 2020

PM_{10} $PM_{2.5}$ O_3

9.6% 16.0% 3.1% SO_2 NO_2 CO

10.0% 8.6% 14.3%

GB3095-2012

$PM_{2.5}$ PM_{10} GB3095-2012

[2021]85

$PM_{2.5}$ VOC_S

2025 $PM_{2.5}$ 35ug/m^3 80%

H_2S

NH_3

TP

GB3838-2002 1

[2021]85

GB3096-2008 3 4a

GB3096-2008 2

D2 D3

GB/T14848-2017 V

/꞉ GB/T14848-2017 1Çā

GB36600-2018

5.97hm^2

	VOCs		
	VOCs		
		300m	
	140.72 15.05		
		VOCs	
	VOCs		

1

2

3

4

5

[illegible]	[illegible]	[illegible]	[illegible] 1 1
2	[illegible]	[illegible] 2	[illegible] 1
3	[illegible]	2018 10 26	
4	[illegible]	[illegible]17 6 27	[illegible] 1 1
5	[illegible]	[illegible]022 6	
6	[illegible]	[illegible] 4 29	
7	[illegible]	[illegible] 8 [illegible]1	

37 4

38

39

40

41 2018

42

43

44 2022

45

[2017]84

46

56 [2021]33

57 [2022]76

58 [2022]42

59 2030 [2021]23

60

2021 9 22

61

16 [1997]122

17

[2011]71

18 [2016]185

19

20

[2016]170

21 [2014]148

22

[201

32 <

47 < >

[2021]3

48 2013

49 2013 2013 8

50

[2018]56

51 < >

[2018]20

52 < >

[2020]94

53

[2020]401

1 HJ 2.1-2016

2 HJ 2.2-2018

3 HJ 2.3-2018

4 HJ 610-2016

5 HJ 2.4-2021

6 HJ 19-2022

7 HJ 169-2018

8 HJ 964-2018

9 HJ 708-2014

10

2018 17

11 HJ435-2008

12 HJ2019-2012

13 HJ846-2017

14 GB34330-2017

15 2017 43

16 HJ885-2018

17 HJ878-2017

18 ( ) (HJ-BAT-005)

1

2

3 [2020]6

4

5

2.2-1

		-1SD	0	0	-1SD	0	0	0
		-1SD	0	0	0	0	0	0
		0	-1SD	0	-1SD	0	0	0
		0	0	0	0	-2SD	0	0
		0	-1SD	0	-1SD	0	0	0
		0	0	0	0	0	0	0
		-2LD	0	0	-1LD	0	-1LD	0
		0	0	0	0	-2LD	0	0
		-1LD	0	0	0	0	0	0
		-1SD	-1SD	0	-1SD	0	0	0

2.2-2

	SO_2 NO_2 PM_{10} $PM_{2.5}$ CO O_3 H_2S	PM_{10} $PM_{2.5}$ SO_2 NO_2	SO_2 NO_x
	A		/
	pH SS COD	/	/
	pH K^+ Na^+ Ca^+ Mg^+ CO_3^{2-} HCO_3^- Cl^- SO_4^{2-}	/	/
	GB36600-2018 pH Cd Hg As Pb Cr6+ Ni Cu 1 1- 1 2- 1 1- -1 2- -1 2- 1 2- 1 1 1 2- 1 1 2 2- 1 1 1- 1 1 2- 1 2 3- 1 2- 1 4- + 2- a a b k a,h 1,2,3-cd GB15618-2018 pH [a]		/
	/		
	/	CO	/

1

SO_2 NO_2 PM_{10} $PM_{2.5}$ CO O_3

GB3095-2012

HJ2.2-2018 D

GB14554-93 2.2-3

SO_2	1	500	
	24	150	
		60	
NO_2	1	200	
	24	80	
		40	
PM_{10}	24	150	
		70	
$PM_{2.5}$	24	75	GB3095-2012
		35	
O_3	1	200	
	8	160	
CO	1	10000	
	24	4000	
		0.000025	
	1	20	
	24	7	
	1	200	
	1	10	HJ2.2-2018 D
		3.0	
	24	1.0	
		3.6TEQpg/m^3	
		1.2TEQpg/m^3	
		0.6TEQpg/m^3	
	1	20	GB14554-93

2

GB28664-2012

GB28665-2012

[2019]35

10 35 50 /

10 50 200 /

10	≤0.[redacted]
11	≤0[redacted]
12	≤0.[redacted]
13	[redacted]

	6.5~8.5	≤1.0	≤150	≤2.0	≤0.01	≤0.001	≤0.005	≤0.0001
		≤2.0	≤300	≤5.0	≤0.1	≤0.01	≤0.01	≤0.0001
		≤3.0	≤450	≤20.0	≤1.00	≤0.05	≤0.05	≤0.0001
	5.5~6.5 8.5~9.0	≤10.0	≤650	≤30.0	≤4.80	≤0.1	≤0.10	≤0.001
	<5.5 >9.0	>10.0	>650	>30.0	>4.80	>0.1	>0.10	>0.001
	≤1.0	≤0.02	≤0.001	≤0.0001	≤0.0001	≤0.1	≤0.005	≤0.05
	≤1.0	≤0.10	≤0.001	≤0.0001	≤0.001	≤0.2	≤0.005	≤0.05
	≤1.0	≤0.50	≤0.01	≤0.001	≤0.005	≤0.3	≤0.01	≤0.10
	≤2.0	≤1.50	≤0.05	≤0.002	≤0.01	≤2.0	≤0.10	≤1.50
	>2.0	>1.50	>0.05	>0.002	>0.01	>2.0	>0.10	>1.50
	≤0.001	≤300	≤3.0	≤100	≤50	≤50	≤0.05	≤0.002
	≤0.001	≤500	≤3.0	≤100	≤150	≤150	≤0.05	≤0.002
	≤0.002	≤1000	≤3.0	≤100	≤250	≤250	≤0.05	≤0.02
	≤0.01	≤2000	≤100	≤1000	≤350	≤350	≤0.5	≤0.10
	>0.01	>2000	>100	>1000	>350	>350	≤1.0	>0.10

GB12348-2008 4

15dB(A) 2.2-10

3	65	55
4	70	55

GB12523-2011

2.2-11

70	55 15dB A

GB36600-2018

GB36600-2018

2.2-12

GB36600-2018 2.2-13

	20	60
	20	65
	3.0	5.7
	2000	18000
	400	800
	8	38
	150	900
	0.9	2.8
	0.3	0.9
	12	37
1,1-	3	9

1,2-	0.52	5
1,1-	12	66
-1,2-		

	1×10^{-5}		4×10^{-5}	
	0.3	0.4	0.6	0.8
	0.3	0.3	0.3	0.6
	0.5	0.5	0.6	1.0
	1.3	1.8	2.4	3.4
	30	30		

	P4	PM_{10}	1.11[illegible]	2[illegible]	26	0	
		$PM_{2.5}$	5.57[illegible]3	2[illegible]		0	
		SO_2	[illegible]08E-02	2[illegible]	244	0	
		NO_2	7.63E-02	38[illegible]		1525	
		PM_{10}	3.38E-02	7[illegible]		0	
		$PM_{2.5}$	1.69E-02	7.52		0	

HJ 2.2-2018

2.3-3 P3 PM_{10} P_{max} 135.1%>10%

	$P_{max} \geq 10\%$
	$1\% \leq P_{max} < 10\%$
H	$P_{max} < 1\%$

HJ2.3-2018 5.2.2.2 1 “

É 3

E1

D2	0.5m≤Mb 1.0m K≤1×10^{-6}cm/s Mb≥1.0m 1×10^{-6}cm/s<K≤1×10^{-4}cm/s
D1	“D2” “D3”

Mb≥1.0m

4.37×10^{-4}cm/s D1

10/

5/

IV+

HJ169-2018

2.3-15

				a

a

A

0

2.3-16

2.3-	

B 20km^2 HJ 19-2022

2.4 ; p

785	-33	E	10
2071	721	NE	1441
1113	1058	NE	965
2389	1594	NE	2110
3106	1675	NE	2656
1290	16<6		

25 SE 3134 25

25 SE 3134 25

64	SW	2769	250
65	SW	3753	278
66	SW	4675	300
67	SW	2555	190
68	SW	2681	210
69	NW	4216	450
70	NW	2836	308
71			

2020 2 [2020]6

2020 7 [2020]35

110KV

2.28 2016-2030

22

2.28km^2

0.14

140.72 15.05 31.51

10.24 26.75 224.41

(3.55

2.5-1

1

1.3 m^3/d

DN250~300 DN150~200

2

2 m^3/d

3.5

1.5 m^3/d 1.5

GB18918-2002 A

DN500~800

3

d500mm d1200mm

2

4

110KV 2 63MVA 220KV

220KV 220KV 220KV

35KV 10KV

12-20m

5

			COD GB3838-2002 III GB3838-2002 III NO_2 PM_{10} $PM_{2.5}$ O_3	
2				
3				
4				
5				
6				
7				

GB3095-2012

GB3838-2002

GB3096-2008

3

1993

700 800

100t 1 100tLF 1

2 3

2 30

1 50 3 80

2011 12 16

[2011]10 2016 12 30

[2016]46

[201

1 50

50

80 400MPa 2017 7

50 80 MPa

[201

“ ”

2020

44970 50

2020 12

1	30 2	/2002 7 1 2004 7 6
2	LNG	/ [2017]55 /2017 6 19
3	50 1	/ [2017]36 /2017 7 7 [2017]36
4	80 400MPa 3	
5	1 2	/ [2019]7 /2019 1 7 /
6	LNG	/ [2019]15 /2019 1 14
7		/ [2019]63 /2019 4 / 25
8	1 2	/ [2019]133 /2019 10 21
9	5	

0

ʑ Ą

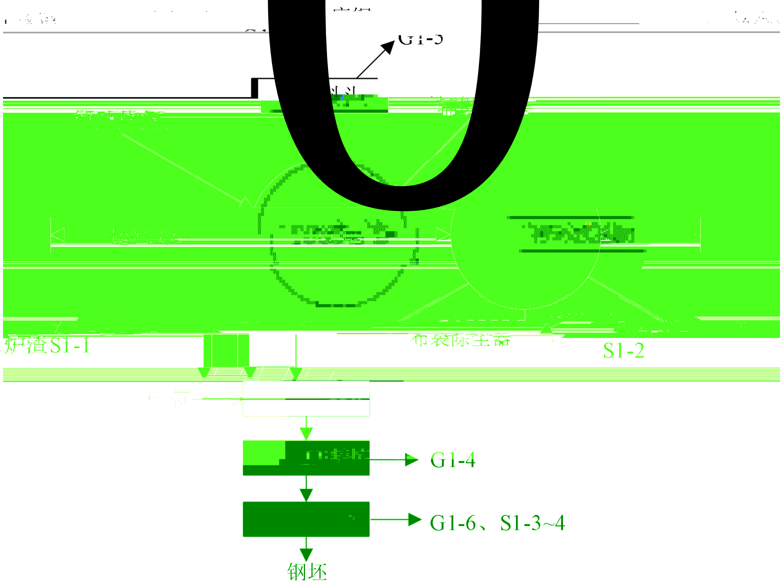
HPB300 10mm~22mm

100 1

100 LF

3

0 0



1~2%

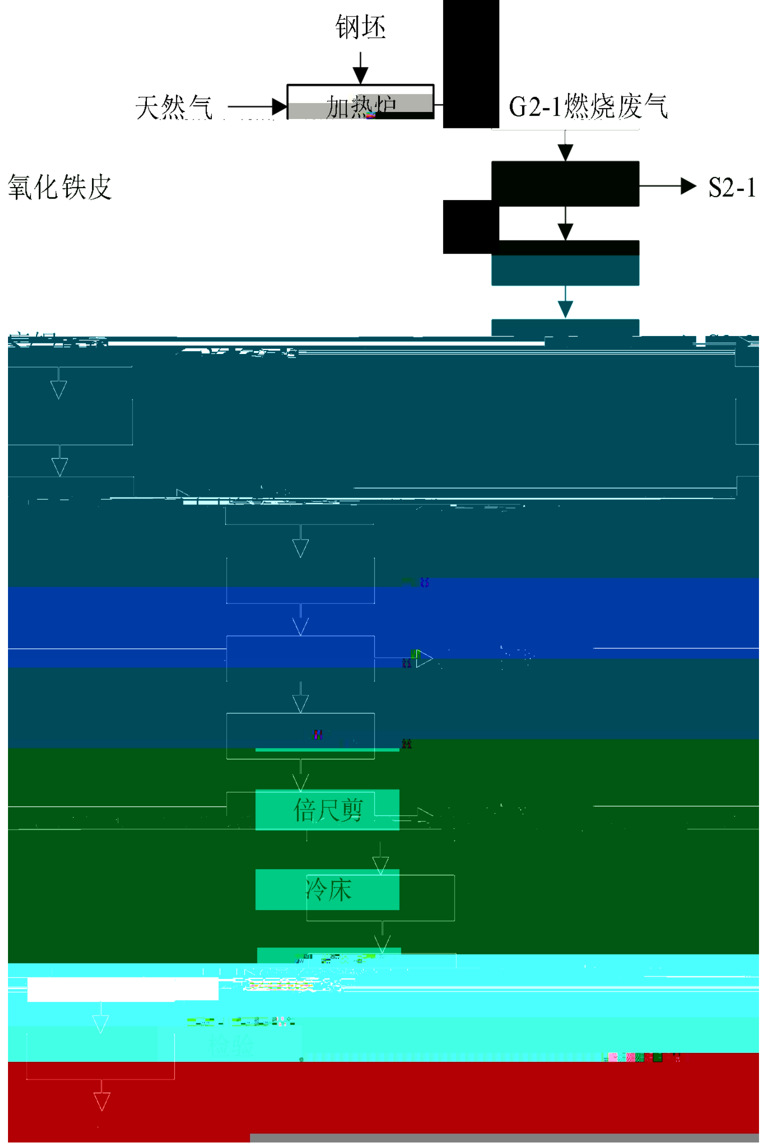
20~40min

400~500

600~700

LF

夫

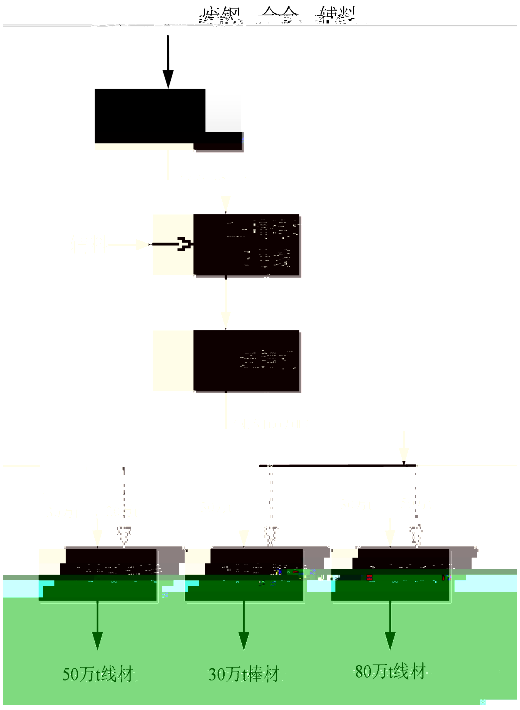


1

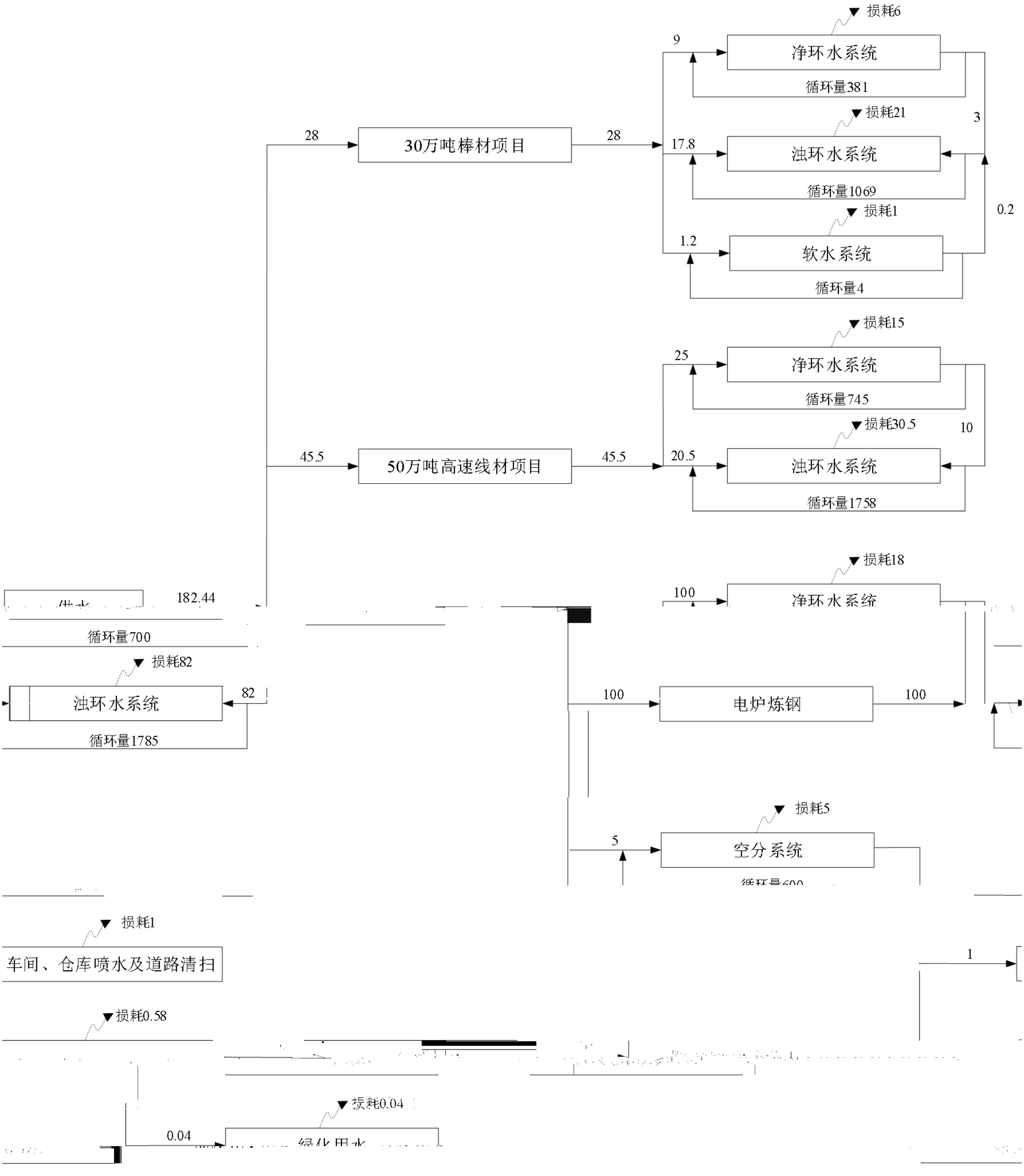
950~1150

2

3



3.7-1


损耗6
9
净环水系统
循环量381
3
28
30万吨棒材项目
28
17.8
损耗21
浊环水系统
循环量1069
损耗1
0.2
1.2
软水系统
循环量4
损耗15
25
净环水系统
循环量745
损耗30.5
10
45.5
50万吨高速线材项目
45.5
20.5
浊环水系统
循环量1758
损耗18
182.44
100
循环量700
损耗82
浊环水系统
82
循环量1785
100
电炉炼钢
100
损耗5
5
空分系统
损耗1
车间、仓库喷水及道路清扫
1
损耗0.58
损耗0.04
0.04

3.8-1

1 50 t/a 550 1

2 30 t/a 550 1

100 1

3 100 t/a 100 LF 1

80 t/a 5 5

550

1 600m²

38200m² 2 15000m²

1

14000m² 2 8600m²

15m³ 1

3 700m²

182.44m³/h

2.9m³/h

65000 kwh/a

LNG 2

150m³LNG

8000m³/h 0.9

LNG 2

60m³LNG

7020m³/h 0.8

				2000m^2	
				4m^3/h	
				1 1069m^3/h 2 1758m^3/h 3 1785m^3/h	+
				1 381m^3/h	1
				2 745m^3/h	2
				3 700m^3/h	3
				2.32m^3/h	30m^3
		1#		10 m^3/h	SCR 50m DA005
				18 m^3/h	+ 20m DA013
		2#	2# 3#	18 m^3/h	+ 20m DA012
		3#		32 m^3/h	+ 26.1m DA015
				60 m^3/h	+ + + DA007
				57.5 m^3/h	+ + DA006
			+	57.5 m^3/h	+ + DA008
				16 m^3/h	DA014
				8000m^3/h	20m
				400m^2	
				256m^2	2 3

3.9-1

1#

2021

3.9-2 3.9-3

“ ”

1#	62	51
2#	62	51
3#	59	49

3.10-1

LNG	74-82-8	173.8t	10t	
	/	0.51t	2500t	
	/	10t	2500t	
10%	1336-21-6	10t	10t 20%	

-160~-164

/ / 5-14

=1

LNG

0.45

-258.8 5

0.13 kPa 6

/145.8 7

8 9

3.10-3

1 LNG LNG
CO
LNG

2 LNG

	2
	DCS

1 100t

1		100T	1
2		FXZ20390	1
3		100T	1
4		5 5	1
5		Y4501-4 10kV	2
6		/	2 1 1
7		Y5002-6 10kV	2
8		YBX5-160M1-2	2
9		YBX5-132S2-2/BZD13L-4	2
10	(	/	2
11	MYE	MYE200/3 0.15KW	31
12		YE4-132M-4	3
13		YE4-90L-4	30
14		YE4-180M-4	7
15		YKK-630-6-1400KW 10KV	2
16		YSPKK630-6-1800KW 10KV	7

3.4.1

1		T	100
2		min	35

3			min	30
4			t	100
5			h	7247
6			%	99.5
7			%	100%
9			m^3/t	28.66
10			Kwh/t	422.86
12			kgce/t	58.41
13			t/t	0.52
16			m^3/t	29.27
17			m^3/t	2.94

			DA015		1450.00	364.48	2624.27	+	99.90%	7200	1.45	0.364	2.62	26.1	1.632	25	320000	251367	10
			DA007		462.00	217.75	1567.78	+ +	99.50%	7200	2.31	1.089	7.84	32	4	100	600000	471313	10
					0.02 ng-TEQ/m³	0.01mg/h	0.08 g/a	+	50.00%	7200	0.01 ng-TEQ/m³	0.006 mg/h	0.04g/a	32	4				0.5ng/m³
			DA006		264.00	139.87	1007.03	+ +	99.50%	7200	1.32	0.699	5.04	29	3.5	45	575000	529795	10
					0.04 ng-TEQ/m³	0.02mg/h	0.14 g/a		50.00%	7200	0.018 ng-TEQ/m³	0.010 mg/h	0.07g/a	29	3.5				0.5ng/m³
			DA008		356.00	188.61	1357.97	+	99.50%	7200	1.78	0.943	6.79	29	3.5	45	575000	529795	10
		+			0.03	0.02 mg/h	0.11		50.0	7200	0.015	0.008	0.06g/a	29	3.5	45		529795	0.5ng/

					ng-TE Q/m^3		g/a	+	0%		ng-TEQ /m^3	mg/h							m^3
			DA0 14		560.0 0	82.56	594.4 0		99.5 0%	7200	2.8	0.413	2.97	26.1	1.63 2	25	160000	147421	10

1		100t	7.1*5.95	5.15		21.29		101.98	0.0348	0.0348×101.98×50%
					SO_2	0.53		112852.5		1615053
					NO_X	4.17			900000	

			7151.45	7126.19	25.26
			0.33g/a	0.16g/a	0.17g/a
			21.29	0	21.29
			0.53	0	0.53
			4.17	0	4.17

2022 9 29

2020

44970 50

2020 12 [2020]68

				30
1	1×7	82B	Φ9.53-21.8	20
2	PC	30MnSi	Φ7-12.6	10
				10
1	CO_2	ER49-1 ER50-6 ER69-1	Φ0.8-1.6	9
2		H08Mn2SiA	Φ4.0	1
				5
1		65Mn,72A	Φ0.8-3	3.5
2		45A 72A	Φ1.78-3.8	0.7

3		45A 72A	Φ5.4-9.6	0.8
				5
1		45	Φ12-48	2
2		45	φ12-48	1
3		45	Φ12-48	2

	NH$_3$-N		0.21	0.08	0.13	0.03
			0.36	0.23	0.13	0.006
	TP		0.03	0.01	0.02	0.003
			22.05	20.947	1.103	1.103
		HCl	5.874	5.287	0.587	0.587
			20.088	18.079	2.009	2.009
			0.288	0.23	0.058	0.058
		HCl	0.162	0	0.162	0.162
			1.7	0	1.7	1.7
			0.412	0	0.412	0.412
			0.032	0	0.032	0.032
		VOCs	0.013	0	0.013	0.013
			88.8	88.8	0	0
			112	112	0	0
			4712.45	4712.45	0	0

3.14-1

		16760	6000
	COD	0.924	0.3
	SS	0.185	0.06
	NH$_3$-N	0.092	0.03
		0.01	0.003
		26.999	1.103
		1.5	/
		14.5	/
	HCl	/	0.587
		/	2.009
		/	0.058
		29.838	1.7
	HCl	/	0.162
		/	0.412
		/	0.032
	VOCs	/	0.013

1 700m^3 2

2023

2

1 60m^3

1 100t 1 100t 1 130t

2 130tLF 1 130tRH 1 1

10m 100

[C3120]

30 36938.43 12.31%

1

59700m^2 5.97hm^2

1000

8 300 7200h

[2021]46 3 130

100 /

100

[2016]95

4.1-1

	+	4.17/a	4.05t/a
		0	0

	89.83	90.82

[redacted]

10	GB/T 699-2015	[redacted]
20	GB/T 699-2015	[redacted]
45	GB/T 699-2015	[redacted]
40Mn2	GB/T 3077-2015	[redacted]
42CrMo	GB/T 3077-2015	[redacted]
H08E	GB/T 3429-2015	[redacted]
ER50-6	GB/T 8110-2008	[redacted]
ER555-B2	GB/T 8110-2008	[redacted]

" [redacted]

54.5min 100%

54.5min 26 / 14.5min

40min

300d

$$\frac{300}{365}\times 100\% = 82.2\%$$

$$Q \quad \frac{24\times 60\times 130}{54.5}\times 300 \approx 103 \quad \text{t/a}$$

4.1-7

1

24	mm	5500
25		

1		/	
2			1
3		t	130
4		min	35
5		/d	24
6		Nm^3/h	Max150
7		Nm^3/h	Max1800
8		mm	Φ550
9		/h	Max50
10		/	
11		mm	Φ1800
12		mm	~600
13		m/min	2~12
14		/	
15		kg/h	507 20
16		Pa	67
17		min	≤3.5
18		kWh/t	4.5
19		m^3/t	0.01
20		Nm^3/t	3
21		Nm^3/t	0.3
22		Nm^3/t	1.2
23		Nm^3/t	1.5
24		Nm^3/t	4.5
25		kgce/t	6.44

1			1
2		-	6-6
3		/	
4		m	R10
5		mm^2	150×150 165×165
6		m	10
7			/

8		m	6~12
9		m/min	0~2.8
10		/	
11		m/min	2
12		mm	1250
13			40
14		min	34
15		min	50
16		/	
17		/	
18		m	5.8
19		%	98.5
20		%	82.2
21		kWh/t	8
22		m^3/t	0.8
23		Nm^3/t	3.0
24		Nm^3/t	0.15
25		Nm^3/t	0.1
26		Nm^3/t	30
27		Nm^3/t	2.4
28		kgce/t	5.192

1			1
2		-	
3		/	
4		m	6.5
5			/
6		m	16.35
7		mm	1000~2300
8		mm	150~180
9		m/min	1.15~1.75
10		/	
11		m/min	1.2
12			40
13		min	34
14		min	50

15		/	
16		/	
17		m	5.8
18		%	98
19		%	82.2
20		kWh/t	10
21		m^3/t	0.8
22		Nm^3/t	3.0
23		Nm^3/t	0.25
24		Nm^3/t	0.1
25		Nm^3/t	30
26		Nm^3/t	3.5
27		kgce/t	6.34

4.1-11

1 600m^2

2 13000m^2

LNG 2

150m^3LNG

1200 Nm^3/a

6 4 2 $50m^3/h$
16.776 m^3/a

1 LF 1
RH 1

1
1
1

2.7m 45m

+ +

+

400m

$23.3m^3/h$

6

1140m³/h [illegible]0MPa

660m³/h 1.0MPa

240m³/h 0.5MPa

150m³/h 0.5MPa

380m³/h 0.8MPa

420m³/h 1.0MPa

2.45MPa

225

40t/h

20

1

2m^3/h

1 250m^3

2.45MPa 1.2MPa

2

11915Nm^3/h DN250

0.4 0.7MPa

1

RH

3005Nm^3/h 0.3MPa

4~6kPa 6~12kPa

0~0.06kPa RH

0~10kPa

DN325×8 GB8163-2018

0.3MPa

2

RH

11885Nm^3/h 16120Nm^3/h

1.2MPa~1.3MPa RH 1.0MPa~1.2MPa

1.2MPa~1.6MPa 99.6%

DN219×6 GB8163-2018

/

3

RH LF

480Nm^3/h 972Nm^3/h LF

1.2MPa~1.6MPa RH 1.0MPa~1.2MPa

0.3MPa~0.4MPa

DN89×5 GB8163-2018

4

RH LF

1258Nm^3/h 1715Nm^3/h

LF 1.2MPa~1.6Mpa RH

1.0MPa~1.2Mpa 0.5MPa~0.6Mpa

DN89×5 GB8163-2018

4

10

0.03

GB50016-2014

GB50414-2018 GB50974-2014

GB50603-2010

1

20L/s

2d

2022

6m

LF RH

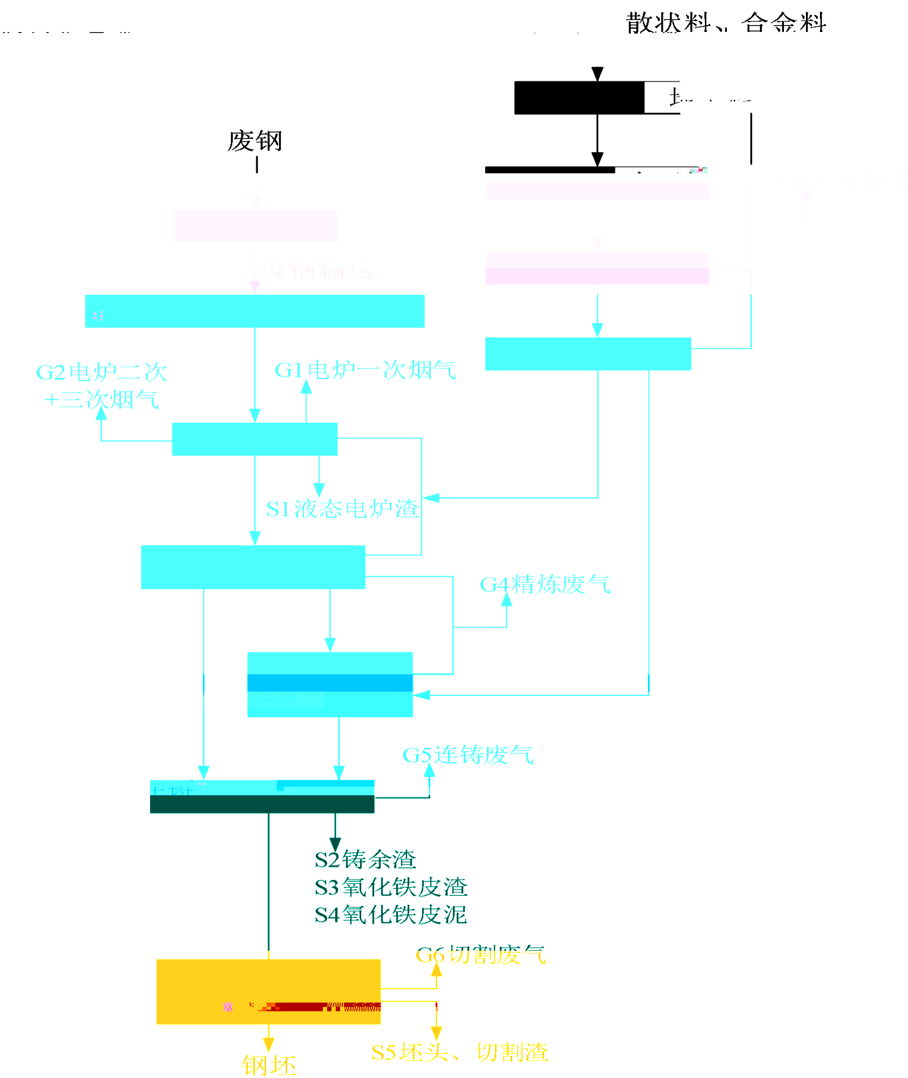
LF RH

4.1-12

	348	30	31.0	150/50t 1 220/80t 2 280/60t 1
	348	34	24.5	20t×2
	348	34	21.0	20t 3 - 125/32t 1

1 36192.64 36192.64 43.85

2 35KV


散状料、合金料
废钢
G2电炉二次
+三次烟气
G1电炉一次烟气
S1液态电炉渣
G4精炼废气
G5连铸废气
S2铸余渣
S3氧化铁皮渣
S4氧化铁皮泥
G6切割废气
钢坯
S5坯头、切割渣

1

1

$0.6\sim1t/m^3$

1

A

2

D1 D2 D3

20 10 4

2 LF 10 2 8

B

P1

P1

P3 P4 P4

PLC

RH

A

2

RH1 RH2

10

B

RH RP1

RP2 RP2

3

1 LF

LF LF

LF LF LF LF

LF

LF

LF RH

±5

5 /min

LF

LF

LF RH

2 RH

RH RH

RH - -

LF RH RH

PLC

/

H

RH

RH

RH RH

LF RH

G4 +

4

1 1 10m

1

~1100

3

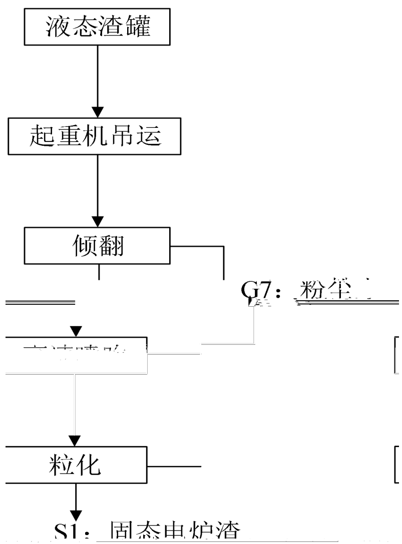
4

G5 G6

S2 S3

S4 S5

5



G7

S1

G2 + +1

4.2-1

+
+
G1 +1
+1 45m

+
G2 +1 +1
45m

G3

LF LF
RH
G4 RH

+1 +1
45m

G5

45m

/

/ LF RH / COD SS

/ / COD SS

RH

7

È

	/			/			
	/			/			
	/			/	HW23		
	/			/	HW49		
	/			/	HW08		

1

4.3-1

4.3-2

1		kg/t	1070	110.21		
2		kg/t	10	1.03		
3	C	kg/t	25	2.575		
4		kg/t	15	1.545		
5		kg/t	12.5	1.288		
6		kg/t	12	1.236		2
7		kg/t	2	0.206		
8		kg/t	1.95	0.2		
9		kg/t	5	0.515		
1		kWh/t	378	38934	kWh	/
2		m^3/t	0.5	51.5	m^3	/
3		Nm^3/t	40	4120	Nm^3	/
4		Nm^3/t	0.3	30.9	Nm^3	/
5		Nm^3/t	0.4	41.2	Nm^3	/
6		Nm^3/t	7.0	721	Nm^3	/
7		Nm^3/t	4.1	422.3	Nm^3	

1		kg/t	5	0.515		
1.1		kg/t	2.5	0.2575		
1.2		kg/t	2.5	0.2575		
2		kg/t	5	0.515		
3		kg/t	2	0.206		
4		kg/t	5	0.515		2
5		kg/t	5	0.515		
6	Al	kg/t	0.4	0.0412		
7		kg/t	0.45	0.0464		
8		kg/t	5	0.515		

1		kWh/t	42	4326	kWh	/
2		m^3/t	0.1	10.3	m^3	/
3		Nm^3/t	0.15	15.45	Nm^3	/
4		Nm^3/t	1.0	103	Nm^3	/

1		kg/t	5	0.515	
1.1		kg/t	2	0.206	
1.2		kg/t	2	0.206	
1.3		kg/t	1	0.103	
2	Al	kg/t	0.1		
					2

6		Nm^3/t	1.5	154.5 Nm^3	/
7		Nm^3/t	4.5	463.5 Nm^3	/
1		kg/t	1030	103	LF RH
2		kg/t	0.15	0.015	
3		kg/t	3	0.3	
4		kg/t	0.09	0.009	
5		kg/t	0.04	0.004	
6		kg/t	0.03	0.003	
7		kg/t	0.5	0.05	2
8		kg/t	0.2	0.02	
9		kg/t	0.03	0.003	
10		kg/t	0.015	0.0015	
11		kg/t	0.01	0.001	
12		/	3	/	/
1		kWh/t	8	800 kWh	/
2		m^3/t	0.8	80 m^3	/
3		Nm^3/t	3	300 Nm^3	/
4		Nm^3/t	0.5	50 Nm^3	/
5		Nm^3/t	0.1	10 Nm^3	/
6		Nm^3/t	30	3000 Nm^3	/
7		Nm^3/t	2.4	240 Nm^3	/

	7		0.252	/
	8		0.2	/
	9		0.515	/
	10		0.515	/
	11	Al	0.103	/
	12		0.0309	/
	13		1.209	/
	14		0.015	/
	15		0.3	/
	16		0.009	/
	17		0.004	/
	18		0.05	/
	19		0.02	/
	20		0.003	/
	21		0.0015	/
	22		0.001	/
	1		50649.9 kWh/a	
	2		108 m^3/a	
	3		4729 Nm^3/a	
	4		127.25 Nm^3/a	
	5		174.8 Nm^3/a	
	6		3978.5 Nm^3/a	
	7		1200 Nm^3/a	

2

110.21

2.0% 0.050%

GB/T4223-2017

5.1

5.2

5.3

5.4

5.5

5.6

5.7 GB5085.3

5.8 GB5085.1 pH 12.5

2.0

5.9 GB13015

5.10

5.11

——

——

——

——

——

——

——

——

5.12

		/	/

4.3-4 4.3-5

1		1	130t
2	LF	2	130t
3	RH	1	130t
4		2	1 1

1

2 1 RH

1.1	125/32t	LK=32m A7		1
1.2	20t	LK=32m A6		5
1.3	220/80t	LK=27.5m A7		2
1.4	280/60t	LK=27.5m A6		1
1.5	150/50t	LK=27.5m A7		1
1.6	3t	CDI		3
1.7	10t	CDI		1
1.8	16t	CDI		2

1.5			30t/h	1
1.6	DN4000	45m		1

1.3	RH	Q=866m^3/h H=79m N=315kW 10KV	2
1.4		Q=1260m^3/h H=126m N=710kW 10KV	2
1.5		Q=305m^3/h H=81m N=110kW 380V	2
1.6		Q=498m^3/h H=115m N=220kW 10KV	2
1.7		Q=439m^3/h H=72m N=132kW 380V	2
1.8		Q=468m^3/h H=101m N=185kW 380V	2

≤200~300mg/L ‛
≤50mg/L 130mg/L

“ ” /

LNG

CO

LNG

4.4-1

		-	-		-	1.5~4.5%	-	
	CH_4	LC_{50} 50000ppm/2	-		-	5~15%	-	
		LD_{50}22500ng/kg 114 g/kg 500 g/kg	-	500 800 21	-	-	-	
CO		LC_{50} 1807ppm/4 LC_{50} 2444ppm/4	-		-		-	

CO CO

LNG

4.4-2 4.4-1

1						
2	LNG					
3						
4						
5						

/ /

4.4-3

			CO /		

				/	/
				/	/
				/	/
				/	/
			/		

1

/

C_d——— 1.00 0.95

0.90 1.00

A——— m

C 85%

q 1.5%~6.0% 3%

Q t/s

CO 0.35kg/s 10min


合金料2.06、增碳剂2.781、
G1电炉一次烟气
粗钢水103
钢水63
G5连铸废气
保护渣0.05、中间
包保温渣0.02
S2铸余渣3.055
S3氧化铁皮渣0.48
S4氧化铁皮泥0.15
G6火焰切割废气
钢坯100
S5坯头、切割渣0.5

110.21

1	110.21	0.02	220.42	100	0.025

							0.5	178	0.89
				181.42					181.42

4

1		110.21	1010	1113.121			100	1060	1060
2		2.06	8200	168.92			0.0046	50	0.0023
							1.131113	50	0.565557
							16	1150	184
							3.055	875	26.73125
							0.63	864	5.4432
							0.5	1060	5.3
				1282.04					1282.04

4.5-6 4.5-2 4.5-7

4.5-3

1		3387.5	3320	67.5	/	49.5	18	98
2	LF	357.2	350	7.2	/	5.2	2.0	98
3	RH	683.5	670	13.5	/	10	3.5	98
4		1165.3	1140	2.0	23.3	19	6.3	98
5		632.3	620	12.3	/	9.1	3.2	98
6		2177.2	2120	57.2	/	57.2	0	97.4

				24.2 33				
	/	8403 33	8220	126.7	23.3	150	0	98

HJ884-2018

HJ885-2018

SO_2

NOx

1

G1

1 45m P1

2.31mg/m^3

100%

≥99.8% 10mg/m^3 3.0mg/m^3

PCDDs/PCDFs

PCDDs/PCDFs

0.012ng-TEQ/m^3

2021

0.15ng-TEQ/m^3

2022 0.1ng-TEQ/m^3

0.1ng-TEQ/m^3

50% 0.2ng-TEQ/m^3

2

≥99.5%

$10mg/m^3$

LF RH

$2mg/m^3$

25 m^3/a 2021

6 SO

SO_2 NO_X

HJ846-2017

0.0348kg/t

70% 80%

6.96t/a

230 m^3/a

2021 6 .06-/a

SO_2 NOx 0.02S kg/ m^3 S

100mg/m

LF RH

7260m^3/h

147m^3/h 110.5m^3/h 36.5m^3/h

39.8m^3/h

2

2120m^3/h 42.8m^3/h

600 8.64 / /

1

HJ885-2018 0.09~0.175t/t 0.16t/t

16 t/a

2

3.055 t/a

2021

2021 59 “ ”

3

0.48 t/a

6

2021

HW49 900-041-49

2022

2021

2021 99 “ ”

7

2500t

2021

2021 54 “ ”

8

4

1t 2021

2021 99 “ ”

9

2t/a 2021

HW08 900-217-08 900-218-08

“ ” 4.6-7

14			/	85		210	52	2.5	70 200 28 148	48.10 38.98 56.06 41.59	24h	10		
15			/	90		251	54	2.8	65 200 33 148	53.74 43.98 59.63 46.59	24h	10		
16			$60\times10^4 m^3/h$, 7200Pa	90	+	181	27	10	70 190 28 158	53.10 44.42 61.06 46.03	24h	10		
17			$140\times10^4 m^3/h$, 5600Pa	90	+	180	15	10	72 192 26 156	52.85 44.33 61.70 46.14	24h	10		
18			$120\times10^4 m^3/h$, 5600Pa	90	+	181	23	10	74 194 24 154	52.62 44.24 62.40 46.25	24h	10		
19			HR5000-V2	90	+	180	3	10	76 193 22 155	52.38 44.29 63.15 46.19	24h			
20			MGB400 , $20\text{-}30m^3/h$	80		258	38	9	65 126 33 222	43.74 37.99 49.63 33.07	24h	10		

28			MGB400 , 20-30m^3/h	80		265	32	9	25 110 73 238	52.04 39.17 42.73 32.47	24h	10		
29			12×$10^4$$m^3$/h, 2500Pa	90	+	218	25	6.5	70 115 28 233	53.10 48.79 61.06 42.65	24h	10		
30			Q=2050m^3/h H=87m N=710kW	80	+	210	35	0.5	55 100 43 248	45.19 40.00 47.33 32.11	24h	10		
31			Q=2050m^3/h H=87m N=710kW	80	+	196	28	0.5	65 122 33 226	43.74 38.27 49.63 32.92	24h	10		
32			Q=2050m^3/h H=87m N=710kW	80	+	203	45	0.5	70 109 28 239	43.10 39.25 51.06 32.43	24h	10		
33		LF	Q=420m^3/h H=80m N=132kW	80	+	192	-2	0.5	71 112 27 236	42.97 39.02 51.37 32.54	24h	10		
34		LF	Q=420m^3/h H=80m N=132kW	80	+	197	39	0.5	68 104 30 244	43.35 39.66 50.46 32.25	24h	10		

35		LF	Q=420m^3/h H=80m N=132kW	80	+	200	49	0.5	65 103 33 245	43.74 39.74 49.63 32.22	24h	10		
36		RH	Q=866m^3/h H=79m N=315kW	80	+	205	81	0.5	67 98 31 250	43.48 40.18 50.17 32.04	24h	10		
37		RH	Q=866m^3/h H=79m N=315kW	80	+	206	85	0.5	621 96 36 252	44.15 40.35 48.87 31.97	24h	10		
38			Q=1260m^3/h H=126m N=710kW	80	+	203	52	0.5	58 101 40 247	44.73 39.91 47.96 32.15	24h	10		
39			Q=1260m^3/h H=126m N=710kW	80	+	194	42	0.5	55 103 43 245	45.19 39.74 47.33 32.22	24h	10		
40			Q=305m^3/h H=81m N=110kW	80	+	196	59	0.5	65 92 33 256	43.74 40.72 49.63 31.84	24h	10		
41			Q=305m^3/h H=81m N=110kW	80	+	191	39	0.5	49 104 49 244	46.20 39.66 46.20 32.25	24h	10		

42	$Q=498m^3/h$ H=115m N=220kW	80	+	223	64	0.5	48 92 50 256	46.38 40.72 46.02 31.84	24h	10
43	$Q=498m^3/h$ H=115m N=220kW	80	+	219	71	0.5	51 87 47 261	45.85 41.21 46.56 31.67	24h	10
44	$Q=439m^3/h$ H=72m N=132kW	80	+	213	47	0.5	43 83 55 265	47.33 41.62 45.19 31.54	24h	10
45	$Q=439m^3/h$ H=72m N=132kW	80	+	215	68	0.5	54 85 44 263	45.35 41.41 47.13 31.60	24h	10
46	$Q=468m^3/h$ H=101m N=185kW	80	+	201	55	0.5	71 80 27 268	42.97 41.94 51.37 31.44	24h	10
47	$Q=468m^3/h$ H=101m N=185kW	80	+	206	35	0.5	72 86			

56			Q=100m³/h H=20m N=11kW	80	+	183	13	0.5	48 80 50 268	46.38 41.94 46.02 31.44	24h	10		
57			Q=100m³/h H=20m N=11kW	80	+	175	-15	0.5	51 75 47 273	45.85 42.50 46.56 31.28	24h	10		

1		DN2000-DN3000	192	166	5	95		24h
2		DN1000-DN2000	186	144	5	95		24h
3		Q=800m³/h	183	120	6	70		24h
4	/	Q=500m³/h	182	103	6	70		24h
5	LF	Q=1000m³/h	177	96	6	70		24h
6	RH	Q=1000m³/h	129	148	6	70		24h
7		Q=2000m³/h	165	153	6	70		24h
8		Q=2000m³/h	174	125	6	70		24h
9	/	Q=1000m³/h	148	154	6	70		24h
10	/	Q=300m³/h	126	158	6	70		24h
11	/	Q=300m³/h	113	163	6	70		24h
12	/	Q=300m³/h	102	165	6	70		24h

13	/	Q=300m^3/h	100	161	6	70		24h
14	/	Q=300m^3/h	86	160	6	70		24h
15		MDWD-700 , 0% 405kg/h	74	161	2.5	80		24h
16		DOS-9	71	160	3.0	70		24h
17		Q=120m^3/h H=45m N=37kW	81	166	0.8	80	+	24h
18		Q=120m^3/h H=45m N=37kW	94	156	0.8	80	+	24h
19		2.5m	81	160	1.2	85		24h
20		2.5m	68	166	1.2	85		24h
21		Q=980m^3/h H=30m N=110						

1

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2

200 PCDD/Fs 60

95% 90%

P1			54.23	600000	30min	90%
			0.72mg/h			
+ P2			34.43	1400000	30min	90%
P3			41.2	1200000	30min	90%
P4			27.76	280000	30min	90%

“ ” “ 4.7-1

4.7-2

			11350.16	11311.12	39.04
		SO_2	0.05	0	0.05
		NO_X	0.4	0	0.4
			0.43g/a	0	0.43g/a
			6.96	0	6.96
		SO_2	0.46	0	0.46
		NO_X	3.65	0	3.65
			6374.38	6374.38	0
			209314.505	209314.505	0

110.21 t/a 103

1070kg/t

150m^3/h 103

=150Ĭ7200/1030000m^3/t=1.05m^3/t

55.34kgce/t

99.9% GB18599

39.04/a 100

=39.04×1000/1000000kg/t=0.039kg/t

100%

60t

100% 100% 1 100t 5 1 130t 5

1.5 2.0 0.948 4 0.2 4

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0.20

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>õ 0.25

		6		0.12						3			3
	0.25	1	kg/t	0.32	≤1060	≤1080	≤1100	1075		6.4	1070		6.4
		2	m^3/t	0.20	≤0.3	≤0.4	≤0.5	0.97	/	/	1.05	/	/
		3	* kgce/t	0.48	≤61	≤64	≤72	61		12	55.34		12
			* 30% kgce/t		≤45	≤55	≤65	/	/	/	/	/	/
	0.05	1	%	0.50	≥99.9	≥99.8	≥99.7	≥99.9		2.5	≥99.9		2.5
		2	%	0.50	99.90	≥99.85	≥99.70	99.9		2.5	99.9		2.5
	0.20	1	* kg/t	0.40	≤0.09	≤0.10	≤0.12	0.05		8	0.039		8
		2		0.30	GB18599	GB18599		GB18599		6	GB18599		6
		3		0.30						6			6

	1	%	0.34	≥98	≥96	≥94	98.38		5.1	98.43		5.1
				100%						100%		
0.15	2		0.33			100%	100%		3.96			4.95
	3		0.33	100%		100%	100%	III	2.97	100%	III	2.97
	1	*	0.15						Ŀ			
	2	*	0.15									
0.10												

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4

5

6 (Cs137)

7

1 Consteel

2

3

4

5

6 LF LF

7 LF

8 LF 5%

9

116 22 -118 40 33 43 -34 58

			Q_4		10~14
			Q_3		10~35
			Q_2		40~45
			Q_1		15~60
			N		>100

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Ã''Ä¹K@wïJ RC(à

[illegible]

1/4000~1/5000

1 5m 20 25 $\times 10^4 m^3/km^2$

300 210

NO_2 32 /

3

7d

20 5km 1~2

2022 6 27 ~2022 ¤ 7 4

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5K 0a D

	X	Y		
G1	/	/	/	/
G2				

2022 ... 0 ... 42 ... 34.0%

...2% ... .9% ... 4 ... 86.4%

4

3

2022 7 11 ~2022 7 13

W1 W2 W3 3

1

pH SS COD

2

2022 7 11 ~2022 7 13

3 2

3

5.2-7

W1			pH SS COD
W2			
W3			

4

5.2-8

pH	/	pH	HJ1147-2020

	/	GB 11892-1989
SS	4mg/L	GB/T 11901-1989
NH_3	0.025mg/L	HJ535-2009
TP	0.01mg/L	GB/T11893-1989
	0.01mg/L	HJ 970-2018
	0.0003mg/L	5- HJ 503-2009
	0.004mg/L	HJ 484-2009
	0.006mg/L	HJ 84-2016
	0.004mg/L	GB/T7467-1987
	0.05μg/L	
		65 HJ700-2014

W1	2022.7.11	10:10	8.4	29.6	24	8.26	15	1.32	0.66	ND	0.0006	ND	0.380	11.6	ND	ND	ND	ND	1.74	ND
		15:20	8.2	30.8	29	7.81	13	0.825	0.79	ND	0.0014	ND	0.284	12.6	ND	ND	ND	ND	1.07	ND
	2022.7.12	08:40	8.1	28.4	29	8.10	17	1.05	0.65	ND	0.0005	ND	0.268	11.4	ND	ND	ND	ND	1.33	ND
		15:20	7.9	30.4	27	8.01	15	1.07	0.63	ND	0.0007	ND	0.337	11.1	ND	0.09	ND	ND	1.04	ND
	2022.7.13	10:20	8.1	27.9	26	7.75	13	1.35	0.57	ND	ND	ND	0.335	9.80	ND	0.15	ND	ND	1.26	ND
		15:40	8.0	29.3	28	7.98	14	1.32	0.56	ND	ND	ND	0.277	13.0	ND	0.13	ND	ND	0.68	ND
W2	2022.7.11	11:06	8.1	30.8	20	8.11	14	0.355	0.61	ND	ND	ND	0.373	13.1	ND	ND	ND	ND	1.57	ND
		15:41	8.2	32.9	25	7.68	16	0.342	0.57	ND	0.0007	ND	0.315	12.6	ND	ND	ND	ND	1.31	ND
	2022.7.12	9:25	7.9	29.1	26	7.90	14	0.217	0.37	ND	0.0004	ND	0.336	11.1	ND	ND	ND	ND	1.32	ND
		16:02	8.0	31.2	23	7.94	18	0.249	0.37	ND	0.0003	ND	0.360	13.4	ND	ND	ND	ND	1.24	ND
	2022.7.13	11:10	7.8	28.3	29	8.09	17	0.297	0.37	ND	ND	ND	0.335	11.6	ND	ND	ND	ND	1.34	ND
		16:08	8.0	29.6	28	8.03	16	0.308	0.36	ND	ND	ND	0.299	10.3	ND	ND	ND	ND	1.73	ND
W3	2022.7.11	10:32	8.1	30.4	23	8.83	17	0.210	0.31	ND	ND	ND	0.415	11.2	ND	ND	ND	ND	1.34	ND
		16:21	8.0	31.2	26	8.54	15	0.797	0.73	ND	ND	ND	0.341	13.1	ND	ND	ND	ND	1.33	ND
	2022.7.12	09:00	7.9	28.9	27	8.69	16	0.571	0.85	ND	0.0009	ND	0.335	16.2	ND	0.11	ND	ND	1.58	ND
		15:44	8.0	30.8	27	8.46	15	0.585	0.84	ND	0.0008	ND	0.402	14.6	ND	0.14	ND	ND	1.30	ND
	2022.7.13	10:39	7.8	28.3	28	7.90	16	0.241	0.41	ND	0.0021	ND	0.431	13.4	ND	ND	ND	ND	0.99	ND
		16:37	7.9	29.6	25	7.98	17	0.204	0.40	ND	0.0022	ND	0.352	13.1	ND	ND	ND	ND	1.17	ND

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TP

GB3838-2002 1

2021 9 7

[2021]85

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2023

2025

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2023 V

2025 80% V

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333 2021 ( ) 30%

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2023

500 /

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V

2025 95% IV

70% IV

3

HJ2.4-2021

HJ2.4-2021

N1 N3~N10 1 N2

4

“ ” 322 5m 322

HJ 964-2018

HJ 964-2018

3 1 2

2022 7 10

2022 7 10 2022 9 1

1

6 3 1

2 T2 T3 T5

0-0.5m 0.5-1.5m 1.5-3m 3-6m T1 T4 T6

0-0.2m 5.2-13

T1		E	10	pH Cd Hg As Pb Cr^{6+} Ni Cu 1 1- 1 2- 1 1- -1 2- -1 2- 1 2- 1 1 1 2- 1 1 2 2- 1 1 1- 1 1 2- 1 2 3- 1 2- 1 4- + 2- a a b k a,h 1,2,3-cd
T2		/	/	pH Cd Hg As Pb Cr^{6+} Ni Cu 1 1- 1 2- 1 1- -1 2- -1 2- 1 2- 1 1 1 2- 1 1 2 2- 1 1 1- 1 1 2-

				2 3- 1 2- 1 4- + 2- a a b k a,h 1,2,3-cd
T3		/	/	Cd Hg As Pb Cr^{6+} Ni Cu
T4		/	/	
T5		/	/	
T6		W	210	pH GB15618-2018 [a]

2

2022 7 10 2022 9 1

1 1

3

1	pH		/	/	8.35
2		mg/kg	0.01	20	8.30
3		mg/kg	0.01	20	0.14
4		mg/kg	0.5	3.0	ND
5		mg/kg	1	2000	17
6		mg/kg	10	400	18
7		mg/kg	0.002	8	0.057
8		mg/kg	3	150	25
9		mg/kg	0.0013	0.9	ND
10		mg/kg	0.0011	0.3	ND
11		mg/kg	0.001	12	ND
12	1 1-	mg/kg	0.0012	3	ND
13	1 2-	mg/kg	0.0013	0.52	ND
14	1 1-	mg/kg	0.001	12	ND
15	-1 2-	mg/kg	0.0013	66	ND
16	-1 2-	mg/kg	0.0014	10	ND
17		mg/kg	0.0015	94	ND
18	1 2-	mg/kg	0.0011	1	ND
19	1 1 1 2-	mg/kg	0.0012	2.6	ND
20	1 1 2 2-	mg/kg	0.0012	1.6	ND
21		mg/kg	0.0014	11	ND
22	1 1 1-	mg/kg	0.0013	701	ND
23	1 1 2-	mg/kg	0.0012	0.6	ND
24		mg/kg	0.0012	0.7	ND
25	1 2 3-	mg/kg	0.0012	0.05	ND
26		mg/kg	0.001	0.12	ND
27		mg/kg	0.0019	1	ND
28		mg/kg	0.0012	68	ND
29	1 2-	mg/kg	0.0015	560	ND
30	1 4-	mg/kg	0.0015	5.6	ND
31		mg/kg	0.0012	7.2	ND
32		mg/kg	0.0011	1290	ND
33		mg/kg	0.0013	1200	ND
34	+	mg/kg	0.0012	163	ND
35		mg/kg	0.0012	222	ND
36		mg/kg	0.09	34	ND

37		mg/kg	0.01	92	ND
38	2-	mg/kg	0.06	250	ND
39	[a]	mg/kg	0.1	5.5	ND
40	[a]	mg/kg	0.1	0.55	ND
41	[b]	mg/kg	0.2	5.5	ND
42	[k]	mg/kg	0.1	55	ND
43		mg/kg	0.1	490	ND
44	[a h]	mg/kg	0.1	0.55	ND
45	[1 2 3-cd]	mg/kg	0.1	5.5	ND
46		mg/kg	0.09	25	ND
47	C_{10}-C_{40}	mg/kg	6	826	ND
48				1×10^{-5}	1.9×10^{-6}
49		mg/kg	63	/	ND

1	pH	/	/	8.46	8.88	8.93	8.48	/	/	/	/	/	/	/	/	/
2		0.01	60	6.60	7.80	16.8	6.90	8.22	7.77	6.31	7.82	7.87	7.95	9.44	6.66	9.03
3		0.01	65	0.14	0.16	0.18	0.23	0.19	0.12	0.13	0.14	0.24	0.16	0.18	0.12	0.17
4		0.5	5.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5		1	18000	28	23	37	19	25	16	13	19	27	26	20	17	27
6		10	800	21	19	33	20	21	14	18	21	34	34	22	20	34
7		0.002	38	0.085	0.109	0.058	0.043	0.058	0.052	0.094	0.046	0.069	0.068	0.070	0.041	0.044
8		3	900	24	31	45	29	35	23	21	29	39	38	30	28	39
9		0.0013	2.8	ND	ND	ND	ND	/	/	/	/	/	/	/	/	/
10		0.0011	0.9	ND	ND	ND	ND	/	/	/	/	/	/	/	/	/
11		0.001	37	ND	ND	ND	ND	/	/	/	/	/	/	/	/	/
		0.0013	5 6		ND	ND	ND	/	/	/	/		/			
12	1,1-	0.0012	9	ND	ND	ND	ND	/	/	/	/	/	/	/	/	/
13	1,2-	0.0013	5	ND	ND	ND	ND	/	/	/	/	/	/	/	/	/
14	1,1-	0.001	66	ND	ND	ND	ND	/	/	/	/	/	/	/		

22	1,1,1-	0.0013	840	ND	ND	ND	ND	/	/	/	/	/	/	/	/	/
23	1,1,2-	0.0012	2.8	ND	ND	ND	ND	/	/	/	/	/	/	/	/	/
24		0.0012	2.8	ND	ND	ND	ND	/	/	/	/	/	/	/	/	/
25	1,2,3-	0.0012	0.5	ND	ND	ND	ND	/	/	/	/	/	/	/	/	/
26		0.001	0.43	ND	ND	ND	ND	/	/	/	/	/	/	/	/	/
27		0.0019	4	ND												

45	[1,2,3-cd]	0.1	15	ND	ND	ND

1			0.3	0.4	0.6	0.8	0.14
			0.3	0.3	0.3	0.6	
2			0.5	0.5	0.6	1.0	0.047
			1.3	1.8	2.4	3.4	
3			30	30	25	20	7.30
			40	40	30	25	
4			80	100	140	240	20
			70	90	120	170	
5			250	250	300	350	50
			150	150	200	250	
6			150	150	200	200	12
			50	50	100	100	
7			60	70	100	190	24
8			200	200	250	300	48
9		0.55					ND
10		0.10					ND
11		0.10					ND
12		/					2.6×10^{-6}

5.2-16 T1

GB36600-2018 5.2-17 T2~T5

GB36600-2018 5.2-18 T6

GB15618-2018

2022 7 12

1

D1~D6 D1~D3 K^+

Na^+ Ca^{2+} Mg^{2+} CO_3^{2-} HCO_3^- Cl^- SO_4^{2-} pH

	4-	0.0003mg/L	HJ503-2009
		/	GB/T 11892-1989
		0.025mg/L	HJ 536-2009
		/	GB/T 5750.12-2006
		/	HJ1000-2018
		0.003mg/L	GB/T 7493-1987
		0.002mg/L	GB/T 5750.5-2006
	49	5mg/L	DZ/T 0064.49-2021
		5mg/L	
	F^- Cl^- NO_2^- Br^- NO_3^- PO_4^{3-} SO_3^{2-} SO_4^{2-}	0.007mg/L	HJ84-2016
		0.018mg/L	
		0.004mg/L	
		0.006mg/L	
	Li^+ Na^+ NH_4^+ K^+ Ca^{2+} Mg^{2+}	0.02mg/L	HJ812-2016
		0.03mg/L	
		0.02mg/L	
		0.02mg/L	
		0.004mg/L	GB/T 5750.6-2006
	32	0.01mg/L	HJ776-2015
		0.01mg/L	
		0.04μg/L	HJ 694-2014
	65	0.12μg/L	HJ700-2014
		0.05μg/L	
		0.09μg/L	
		0.06μg/L	
		0.02μg/L	

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UTS22060026E

5.2-21

D1	2.02	2.02	E:116.91552758 N 34.49761767
D2	0.w		

D3	2.20	2.20	E:116.91998005	N	34.49997407
D4	1.96	1.96	E:116.92251205	N	34.49191428
D5	1.86	1.86	E:116.90660119	N	34.50506244
D6	3.11	3.11	E:116.91088200		

	mg/L	0.01	ND	ND	ND
	mg/L	0.01	0.05	0.01	0.14
	μg/L	0.02	ND	ND	ND

1

GB/T14848-2017

2

5.2-23

pH			
		V	
	/	/	/
	/	/	/
			V
		V	
	/	/	/
	/	/	/
	/	/	/
	/	/	/

D2 D3

GB/T14848-2017 V

GB/T14848-2017

1

5.3-1

	46.55	0.53	4.17	0.17g/a
	46.55	0.53	4.17	0.17g/a

1 50

5.3-2

50	/	/	2.803	0.09	/	/	/	0.749	2.421	0.013
	/	/	2.803	0.09	/	/	/	0.749	2.421	0.013

80 100dB(A)

6.1-1

1	5	84
2	5	84
3	5	90
4	5	87
5	5	92
6		

1

2

1

COD BOD$_5$ SS

SS

2

1

2

3

58013

116.900°E 34.750°N 36.5 28.3km

WRF 24734

1116.923°E 34.769°N

2021

1

2021 6.2.1-1 6.2.1-1

(°C)	1.72	8.07	11.02	14.89	21.24	26.98	27.55	26.45	23.92	16.75	9.95	4.31

2

	10.51	2.54	2.26	5.12	18.34	8.83	4.53	6.66	13.41	6.48	2.26	1.95	4.12	2.36	3.08	6.48	1.09
	4.89	2.99	2.58	6.02	27.54	11.96	4.30	4.98	13.68	5.62	2.63	2.26	4.17	1.36	1.77	2.22	1.04
	11.31	2.70	2.56	4.17	20.92	7.37	2.79	3.57	8.20	4.17	2.75	1.92	3.75	3.21	6.78	9.02	4.81
	10.37	3.43	1.44	3.47	22.50	8.24	3.47	3.47	8.75	12.08	3.75	3.61	3.19	2.31	2.45	6.11	1.34
	9.26	2.91	2.21	4.70	22.33	9.11	3.78	4.68	11.03	7.07	2.84	2.43	3.81	2.31	3.52	5.95	2.07

	785	-33				E	
	1290	1618				NE	
	417	2055				NE	
	-218	813				NW	
	-375	164				NW	
	55	-491				SE	
	-484	-996				SW	
	-47	-1774				SW	
	1795	-1903				SE	

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SO_2 NO_x

PM_{10} $PM_{2.5}$ SO_2 NO_2

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- HJ2.2-2019 5

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P1		292	239	38	45	4	600000	180	7200		/	/	1.08	0.54	0.036mg/h
P2	+	197	205	38	45	5.8	1400000	60	7200		/	/	1.72	0.86	0.023mg/h
P3		147	-69	38	45	5.8	1200000	45	7200		0.02	0.144	2.06	1.03	/
P4		283	233	38	45	2.7	280000	140	7200		/	/	0.56	0.28	/

1		249	86	35	348	98	20	43.85	7200		0.31	2.187	0.97	0.485

DA015		667	70	37	26.1	1.632	320000	25	7200		/	/	0.364	0.182	/
DA007		465	165	38	32	4	600000	100	7200		/	/	1.089	0.5445	0.006mg/h
DA006		572	42	38	29	3.5	575000	45	7200		/	/	0.699	0.3495	0.010mg/h
DA008	+	663	44	37	29	3.5	575000	45	7200		/	/	0.943	0.4715	0.008mg/h

NO_2		1	7.49E-03	21081707	3.74	
			1.42E-04	210418	0.18	
			-2.92E-03		-7.3	
		1	3.93E-02	21102024	19.64	
			2.15E-03	211201	2.69	
			-1.50E-04		-0.38	
		1	4.84E-02	21111518	24.19	
			3.10E-03	211230	3.88	
			1.65E-04		0.41	
		1	6.25E-02	21121822	31.24	
			2.79E-03	211218	3.49	
			4.48E-05		0.11	
		1	1.47E-01	21013021	73.55	
			1.14E-02	211027	14.19	
			1.47E-03		3.67	
		1	1.09E-01	21040524	54.72	
			1.84E-02	210406	22.95	
			1.78E-03		4.44	
		1	7.07E-02	21123101	35.33	
			3.36E-03	211231	4.2	
			9.20E-05		0.23	
		1	6.67E-02	21122621	33.36	
			1.49E-02	211114	18.57	
			1.53E-03		3.82	
		1	2.47E-02	21080905	12.37	
			1.34E-03	211009	1.68	
			3.55E-07		0	
		1	1.63E-01	21031122	81.6	
			3.25E-02	211114	40.6	
			3.34E-03		8.36	

PM_{10}			3.25E-06	210626	0	
			-1.87E-02		-26.65	
			5.26E-04	211209	0.35	
			-2.36E-03		-3.37	

			5.12E-04	211109	0.34	
			-1.06E-03		-1.51	
			3.28E-04	211220	0.22	
			-1.40E-03		-2	
			1.45E-03	211113	0.96	
			-4.04E-03		-5.78	
			7.44E-03	211024	4.96	
			-2.38E-03		-3.4	
			1.30E-03	211231	0.87	
			-9.38E-04		-1.34	
			6.01E-03	210406	4.01	
			-4.19E-04		-0.6	
			1.54E-04	210407	0.1	
			-5.44E-04		-0.78	
			1.31E-02	210406	8.73	
			-1.30E-04		-0.19	

1.63E-06 210626 0

$PM_{2.5}$

^ P '–B‰0 @

			2.34E-05	0.04	8.10E-03	8.12E-03	13.54	
			3.96E-04	0.26	1.66E-02	1.70E-02	11.3	
			6.27E-06	0.01	8.10E-03	8.11E-03	13.51	
			1.61E-03	1.07	1.57E-02	1.73E-02	11.5	
			2.08E-04	0.35	8.10E-03	8.31E-03	13.85	
			2.60E-03	1.74	1.49E-02	1.75E-02	11.7	
			2.52E-04	0.42	8.10E-03	8.35E-03	13.92	
			4.77E-04	0.32	1.65E-02	1.70E-02	11.3	
			1.30E-05	0.02	8.10E-03	8.11E-03	13.52	
			2.11E-03	1.4	1.59E-02	1.80E-02	12	
			2.17E-04	0.36	7.88E-03	8.10E-03	13.86	
			1.90E-04	0.13	1.68E-02	1.70E-02	11.3	
			2.27E-08	0	8.10E-03	8.10E-03	13.5	
			4.60E-03	3.07	1.34E-02	1.80E-02	12	
			4.74E-04	0.79	8.11E-03	8.58E-03	14.29	

			1.42E-04	0.18	6.30E-02	6.31E-02	78.9	
			-2.92E-03	-7.3	2.84E-02	2.55E-02	63.65	
			2.15E-03	2.69	6.29E-02	6.50E-02	81.2	
			-1.50E-04	-0.38	2.84E-02	2.82E-02	70.58	
			3.10E-03	3.88	6.17E-02	6.48E-02	81	
			1.65E-04	0.41	2.83E-02	2.85E-02	71.37	
			2.79E-03	3.49	6.21E-02	6.49E-02	81.2	
			4.48E-05	0.11	2.84E-02	2.84E-02	71.06	
			1.14E-02	14.19	5.96E-02	7.10E-02	88.8	
NO_2			1.47E-03	3.67	2.83E-02	2.98E-02	74.62	
			1.84E-02	22.95	5.28E-02	7.12E-02	89	
			1.78E-03	4.44	2.84E-02	3.02E-02	75.39	
			3.36E-03	4.2	6.16E-02	6.50E-02	81.2	
			9.20E-05	0.23	2.84E-02	2.85E-02	71.18	
			1.49E-02	18.57	5.56E-02	7.05E-02	88.2	
			1.53E-03	3.82	2.84E-02	2.99E-02	74.77	
			1.34E-03	1.68	6.37E-02	6.50E-02	81.3	
			3.55E-07	0	2.84E-02	2.84E-02	70.95	
			3.25E-02	40.6	4.42E-02	7.67E-02	95.9	

			3.34E-03	8.36	2.84E-0[illegible]	3.17E-02	79.31	

			3.25E-06	0	6.98E-02	7.00E-02	46.7	
			-1.87E-02	-26.65	7.00E-02	5.16E-02	73.72	
			5.26E-04	0.35	6.94E-02	7.00E-02	46.7	
			-2.36E-03	-3.37	7.00E-02	6.78E-02	96.88	
			5.12E-04	0.34	6.95E-02	7.00E-02	46.7	
			-1.06E-03	-1.51	7.00E-02	6.91E-02	98.7	
			3.28E-04	0.22	6.98E-02	7.01E-02	46.7	
			-1.40E-03	-2	7.00E-02	6.88E-02	98.31	
			1.45E-03	0.96	6.86E-02	7.01E-02	46.8	
			-4.04E-03	-5.78	7.00E-02	6.64E-02	94.84	
PM_{10}			7.44E-03	4.96	6.59E-02	7.35E-02	49	
			-2.38E-03	-3.4	7.00E-02	6.78E-02	96.81	
			1.30E-03	0.87	6.88E-02	7.02E-02	46.8	
			-9.38E-04	-1.34	7.00E-02	6.91E-02	98.75	
			6.01E-03	4.01	6.67E-02	7.27E-02	48.5	
			-4.19E-04	-0.6	7.00E-02	6.97E-02	99.55	
			1.54E-04	0.1	6.98E-02	7.00E-02	46.7	
			-5.44E-04	-0.78	7.00E-02	6.95E-02	99.3	
			1.31E-02	8.73	6.32E-02	7.63E-02	50.9	
			-1.30E-04	-0.19	7.00E-02	6.99E-02	99.84	

k k -20%

k

k—— %

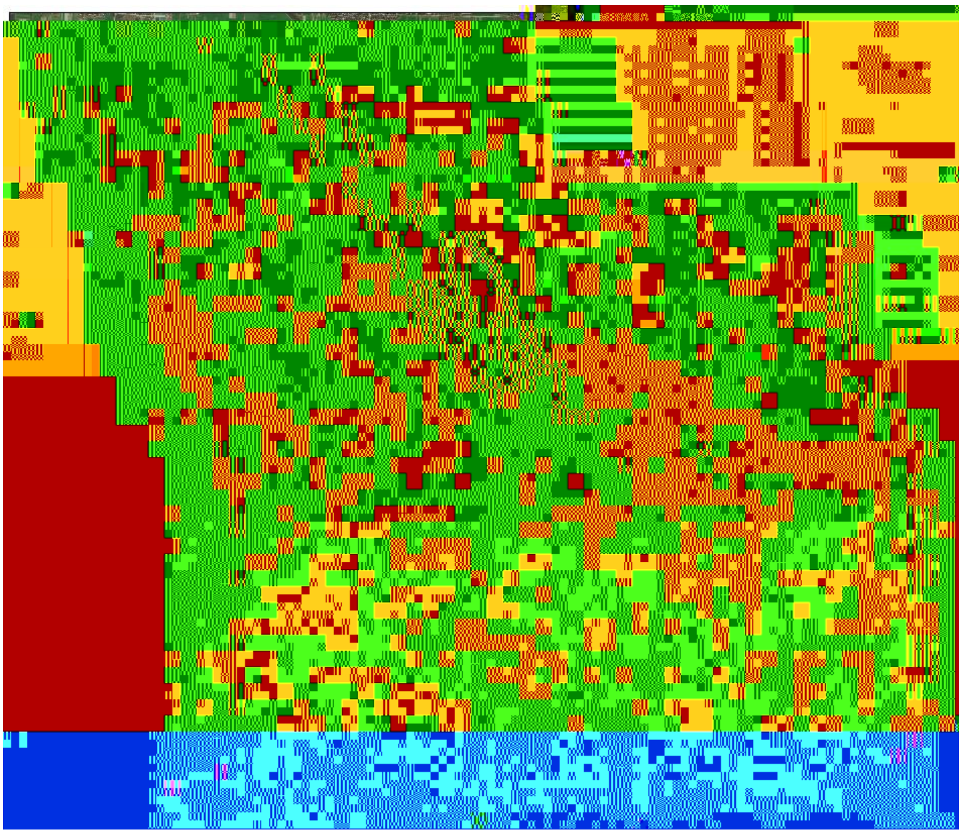
$\overline{C}$本项目（a）—— μg/m^3

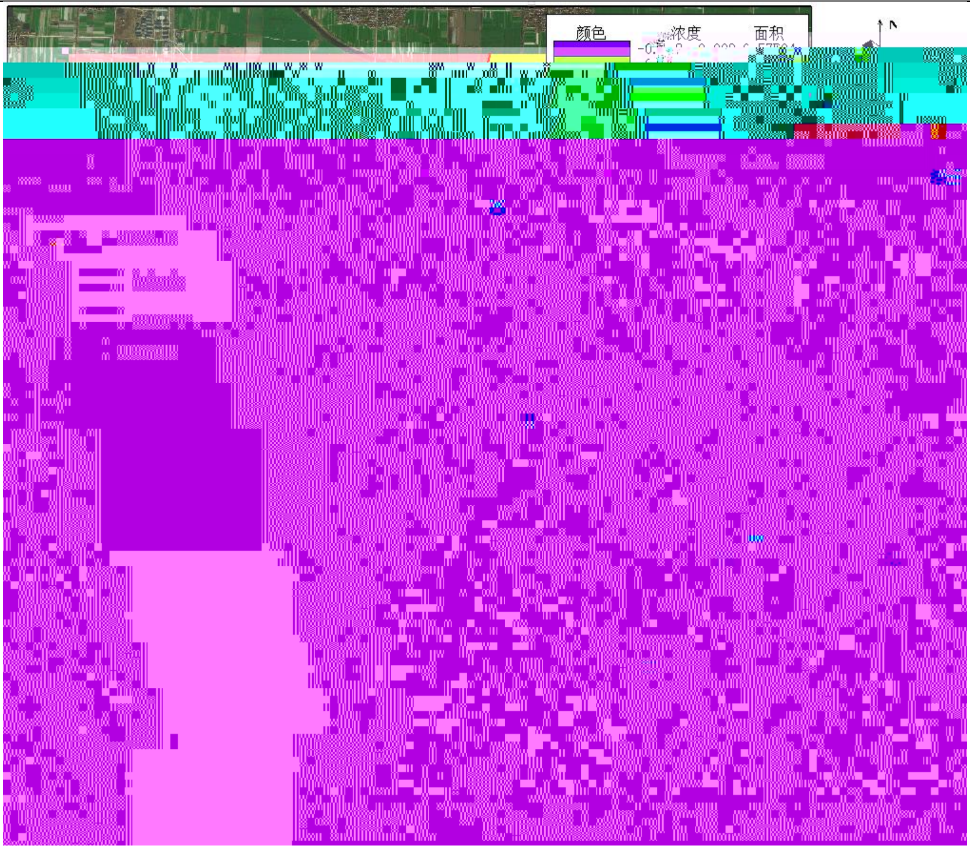
$\overline{C}$区域削减（a）——


颜色
面积


颜色
浓度
面积
5.82E-11

NO_2

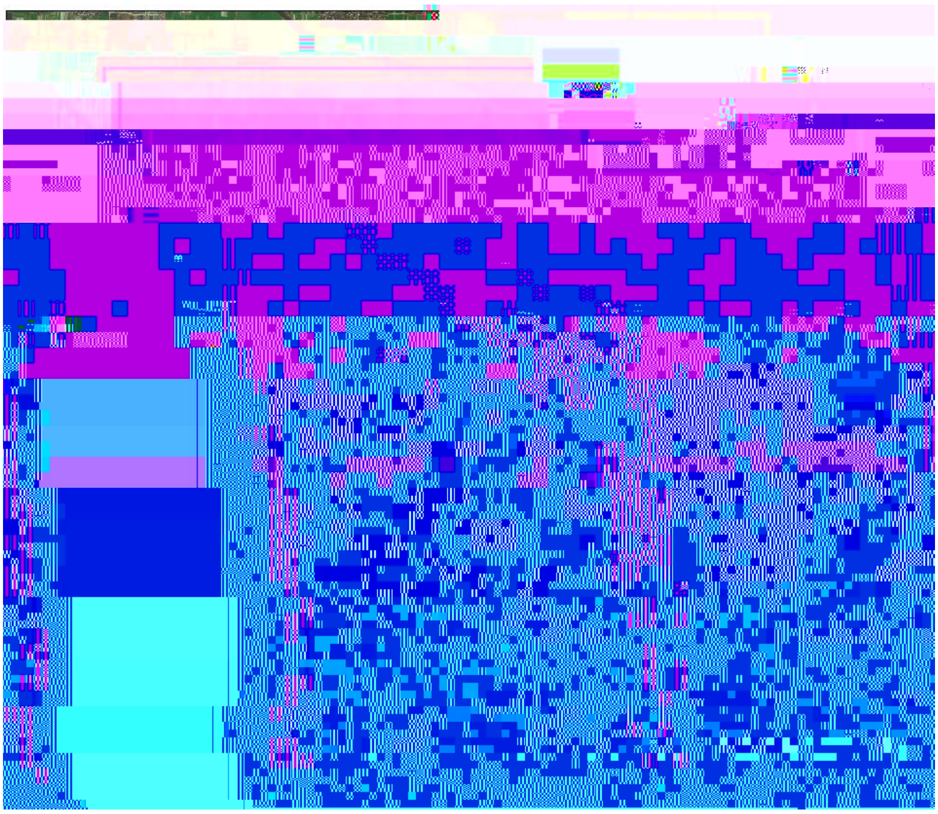




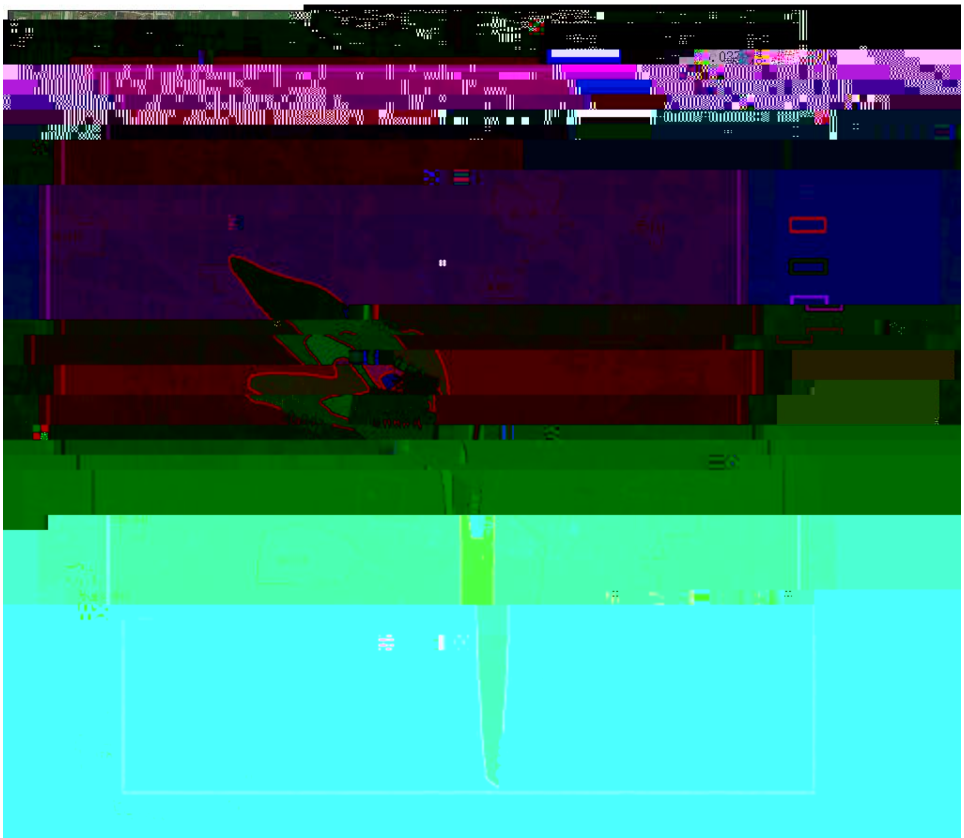
颜色
浓度
面积

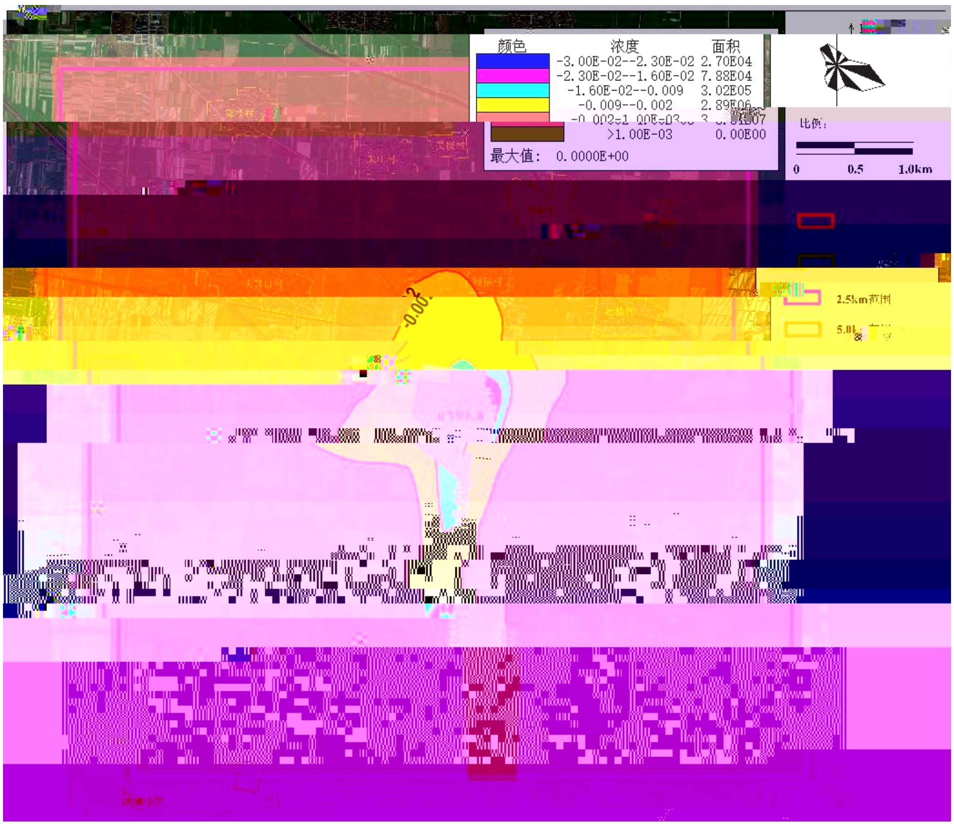
浓度
-6.00E-03—4.00E-03 1.18E05
-4.00E-03—2.00E-03 3.14E05
-2.00E-03-2.33E-10 7.87E06
2.33E-10-2.00E-03 2.80E07
-3.40E-03 5.67E04
最大值： 3.3400E-03
N
0
0.5
1.0km

PM$_{10}$



$PM_{2.5}$

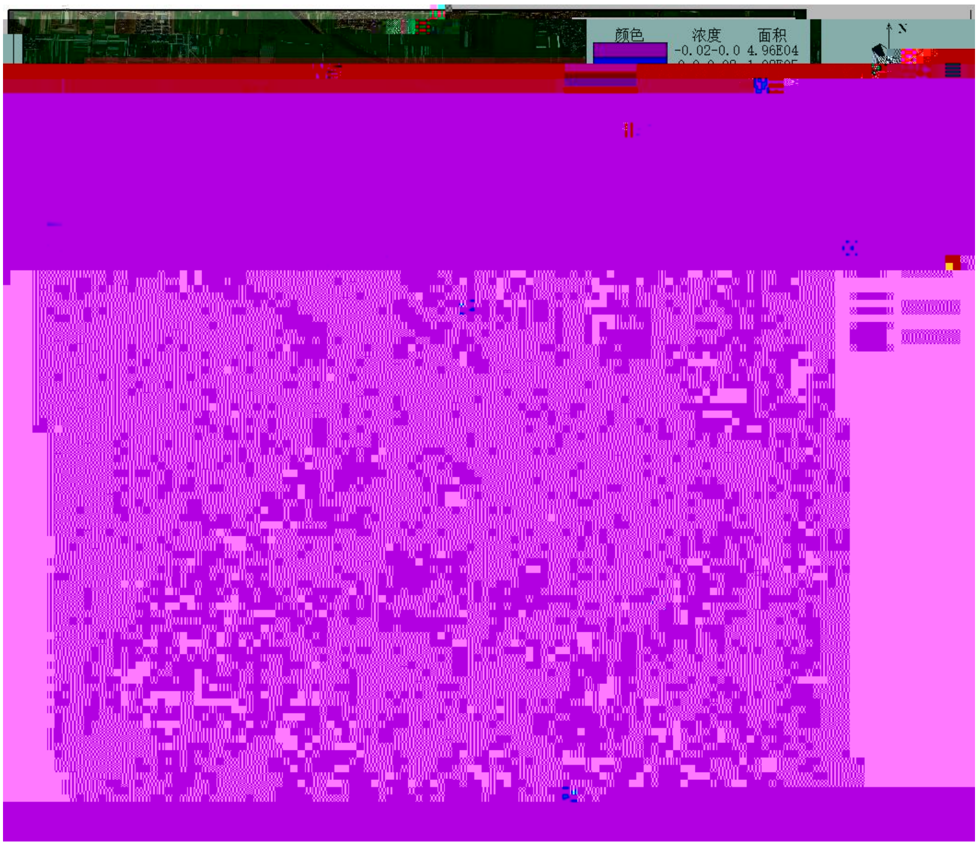



颜色
浓度
面积
-3.00E-02--2.30E-02 2.70E04
-2.30E-02--1.60E-02 7.88E04
-1.60E-02--0.009 3.02E05
-0.009--0.002 2.89E06
>1.00E-03 0.00E00
最大值： 0.0000E+00
比例：
0
0.5
1.0km
2.5km范围
-0.002

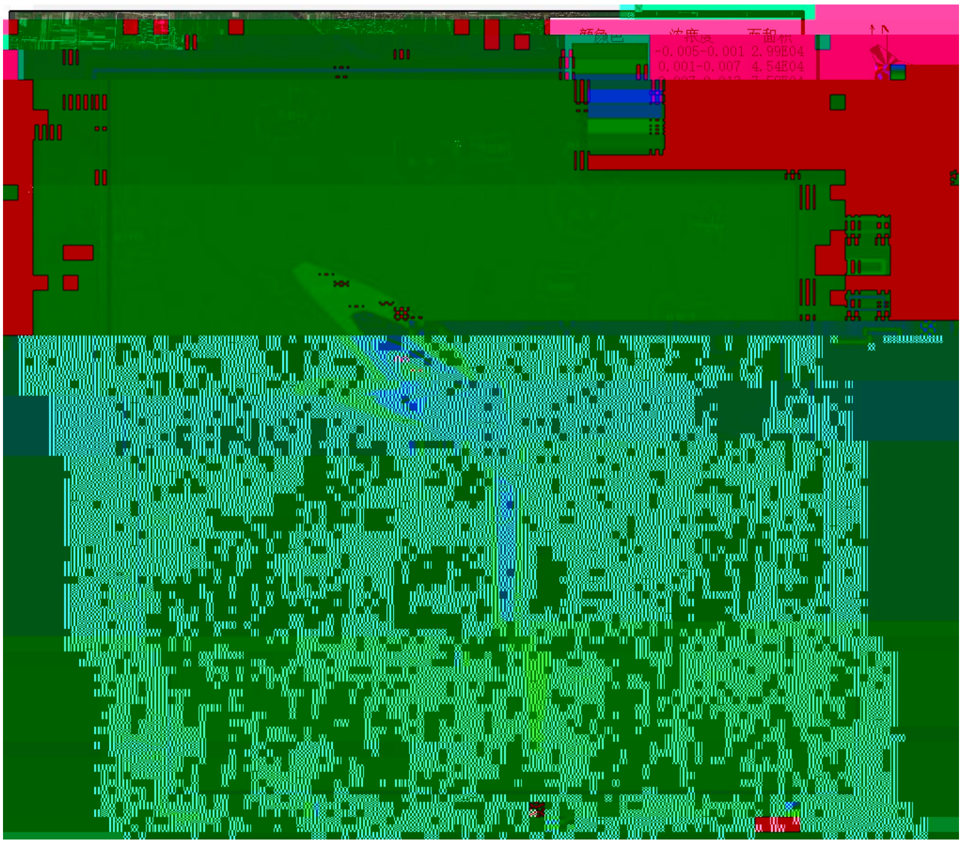
SO_2 D2HI2 34 P ”D„• `

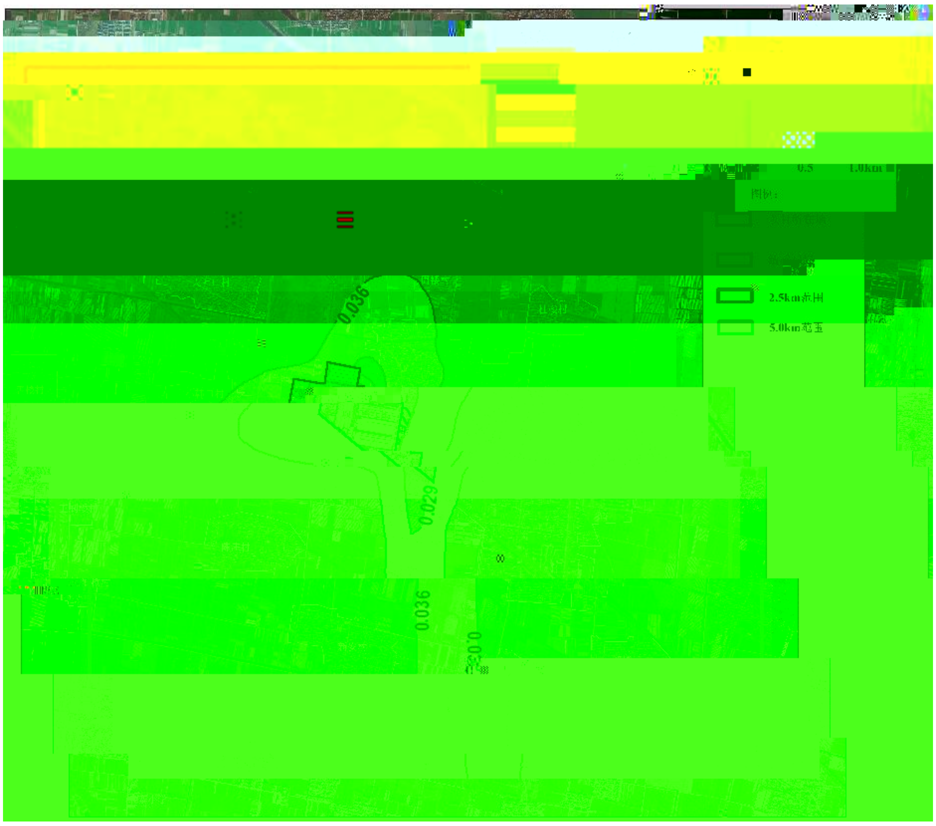
NO_2

PM_{10}



$PM_{2.5}$





6.2.1-30 6.2.1-31

PM_{10}		1	5.49E-02	21110706	12.19	
		1	3.41E-02	21051208	7.58	
		1	4.00E-02	21042607	8.90	
		1	3.62E-02	21092209	8.05	
		1	6.03E-02	21092505	13.39	
		1	7.77E-02	21072819	17.27	
		1	3.78E-02	21080907	8.40	
		1	2.88E-02	21040319	6.39	
		1	2.38E-02	21080907	5.28	
		1	8.44E-02	21080719	18.76	

		1	2.74[illegible]02	[illegible]06	12.19	
		1	1.71[illegible]02	[illegible]51208	7.58	
		1	2.00[illegible]	2104[illegible]607	8.90	
		1	[illegible]	21092209	8.05	
PM2.5		1	[illegible]	21092505	[illegible].39	
		1	[illegible]E-02	21072819	17.27	
		1	1.89E-02	21080907	8.40	
		[illegible]	1.44E-02	21040319	6.39	
		[illegible]	1.19E-02	21080907	5.28	
		[illegible]	4.22E-02	21080719	18.76	

1

HJ2.2-2018 -

AERMOD

2

GB/T39499-2020

Q_c kg/h

C_m mg/m^3

L m

r

	3410[illegible]	43.85		0.[illegible]	54.583	100
			SO_2	[illegible]0.31	12.469	50
			NO_X	[illegible]2.43	286.35	300

100m 50m 100m

1000m 100m

300m

1

\+ +

\+

Ö GB 28664-2012

2

8.7.2.3

SO_2 NO_2 PM_{10} $PM_{2.5}$

100%

SO_2 NO_2 PM_{10} $PM_{2.5}$

30% ×

PM_{10} $PM_{2.5}$

PM_{10}

$PM_{2.5}$

P

3

PM_{10} $PM_{2.5}$

4

2021 50m

300m

6.2.1-33

	=50km	5 50km	=5km
SO_2 +NOx	≥ 2000t/a	500 ~ 2000t/a	<500 t/a
	SO_2 NO_2 PM_{10} $PM_{2.5}$		$PM_{2.5}$ $PM_{2.5}$

D

2021

)ß

				$C_{本项目}$ ≤30%	$C_{本项目}$ >30%
	1h	0.5h		$C_{非正常}$ ≤100%	$C_{非正常}$ >100%
		$C_{叠加}$		$C_{叠加}$	
		k ≤-20%		k>-20%	
		SO_2 NO_X			
		PM_{10} SO_2 NO_2		2	
		m			
		SO_2 0.51 t/a	NOx 4.05 t/a	46.0 t/a	VOCs / t/a
“ ”	“√” “ ”				

1

LF RH

6 4 2

		I II III IV V	
		/ km / km^2	
		/	
		□	

/(t/a) /(mg/L)

/ / /

/ (t/a) / (mg/p

1

2

2021

2021 59

3

2021

2021 99

7

2021

2021 54

8

2021

2021

99

9

2021 HW23 312-001-23

10

2021 HW49

900-041-49

2022

11

2021 HW08 900-217-08 900-218-08

6.2.3-1

1	1p	/	/	312-001-52	1600

3			/	/	312-001-54	4800
4	/		/	/	312-001-54	1500
5			/	/	312-001-09	5000
6			/	/	312-001-66	4947.03
7		/	/	/	312-001-9	

1 $60m^3$ 6364.1t/a

21.2t 2 $60m^3$

1			HW23	312-001-23		$60m^3$	/	/	2
2			HW08	900-217-08 900-218-08	2 3	$256m^2$		50t	6

[2019]327

HJ1276-2022

GB 18597-2023 [2019]327

GB 18597-2023

[2019]327

2

1

2

HW23 312-001-23

HW49 900-041-49

2022

HW08 900-217-08 900-218-08

4.6-8

4.6-9

3

$$L_{p2} \quad L_{p1} \quad (TL \quad 6)$$

L_{p1}—— A dB

L_{p2}—— A dB

TL—— A dB

4 Leq

$$L_{eq} = 10\lg\left(10^{0.1L_{eqg}} + 10^{0.1L_{eqb}}\right)$$

L_{eqg}—— dB(A)

L_{eqb}—— dB(A)

6.2.4-1

1	1	56	46	56	46	65	55	17.61	17.61	56.00	46.01	0.00	0.01		
2	2	57	46	57	46	65	55	15.20	15.20	57.00	46.00	0.00	0.00		
3	1	62	53	62	53	70	55	17.32	17.32	62.00	53.00	0.00	0.00		
4	2	62	53	62	53	70	55	35.87	35.87	62.01	53.08	0.00	0.08		
5	3	63	53	63	53	70	55	26.06	26.06	63.00	53.01	0.00	0.01		
6		57	46	57	46	65	55	26.44	26.44	57.00	46.05	0.00	0.05		
7	1	62	44	62	44	65	55	17.83	17.83	62.00	44.01	0.00	0.01		
8	2	62	44	62	44	65	55	23.95	23.95	62.00	44.04	0.00	0.04		
9	3	62	45	62	45	65	55	20.12	20.12	62.00	45.01	0.00	0.01		
10		58	46	58	46	60	50	17.06	17.06	58.00	46.01	0.00	0.01		

GB12348-2008 4

GB12348-2008 3 GB3096-2008 2

		200m 200m 200m
		A A

	0	1	2	3	4a	4b
					100%	
					…	

1

HJ 169-2018

CO

2

60min

3

6.2.5-1

	°	116°54′22.25″	116°54′25.32″
	°	34°30′3.14″	34°29′58.44″
		LNG	CO
	m/s	1.5	1.5
		25	25
	%	50	50
		F	F
	m	3	3
	m	90	90

4

HJ 169-2018 H

-1 -2 260000mg/m^3

150000mg/m^3 CO -1 -2 380mg/m^3 95mg/m^3

5

LNG 6.2.5-2

6.2.5-3 6.2.5-1

CO 6.2.5-4

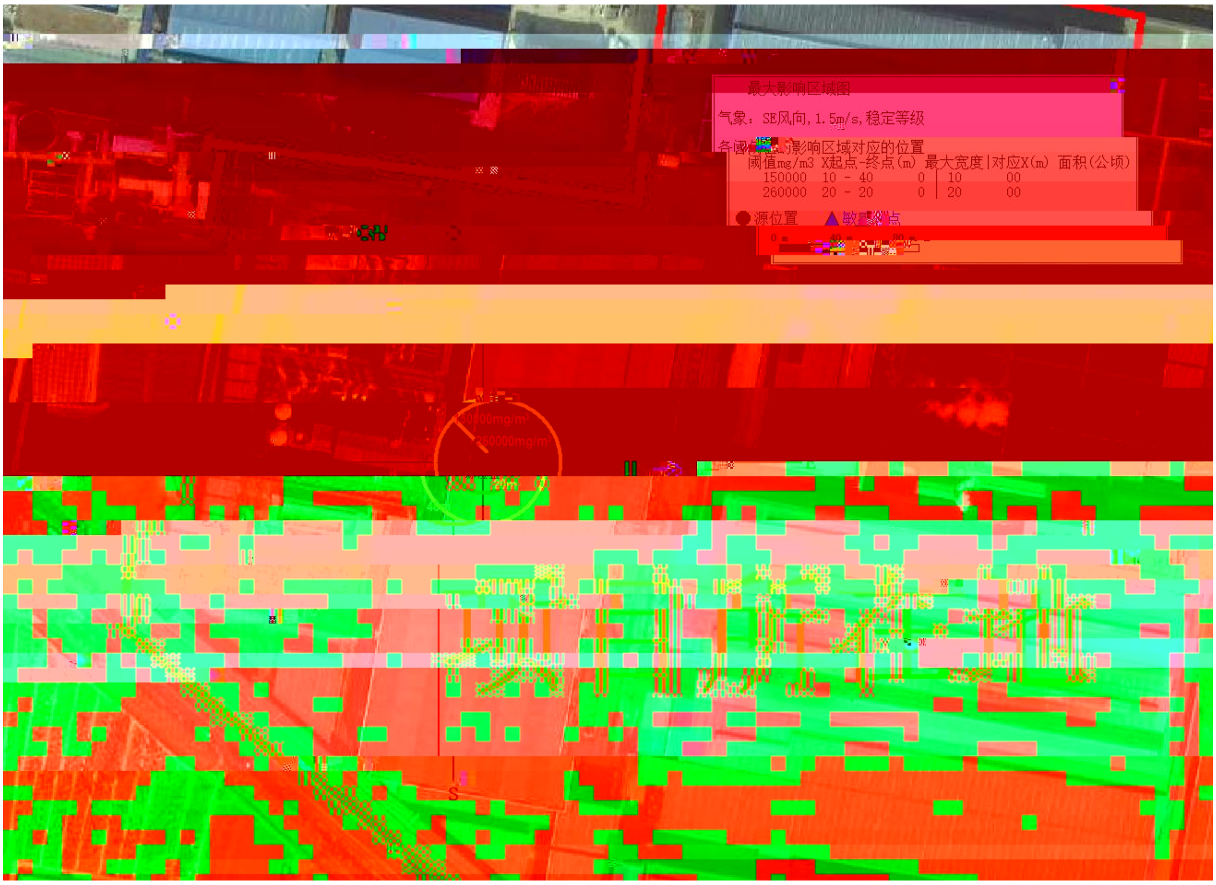
6.2.5-2

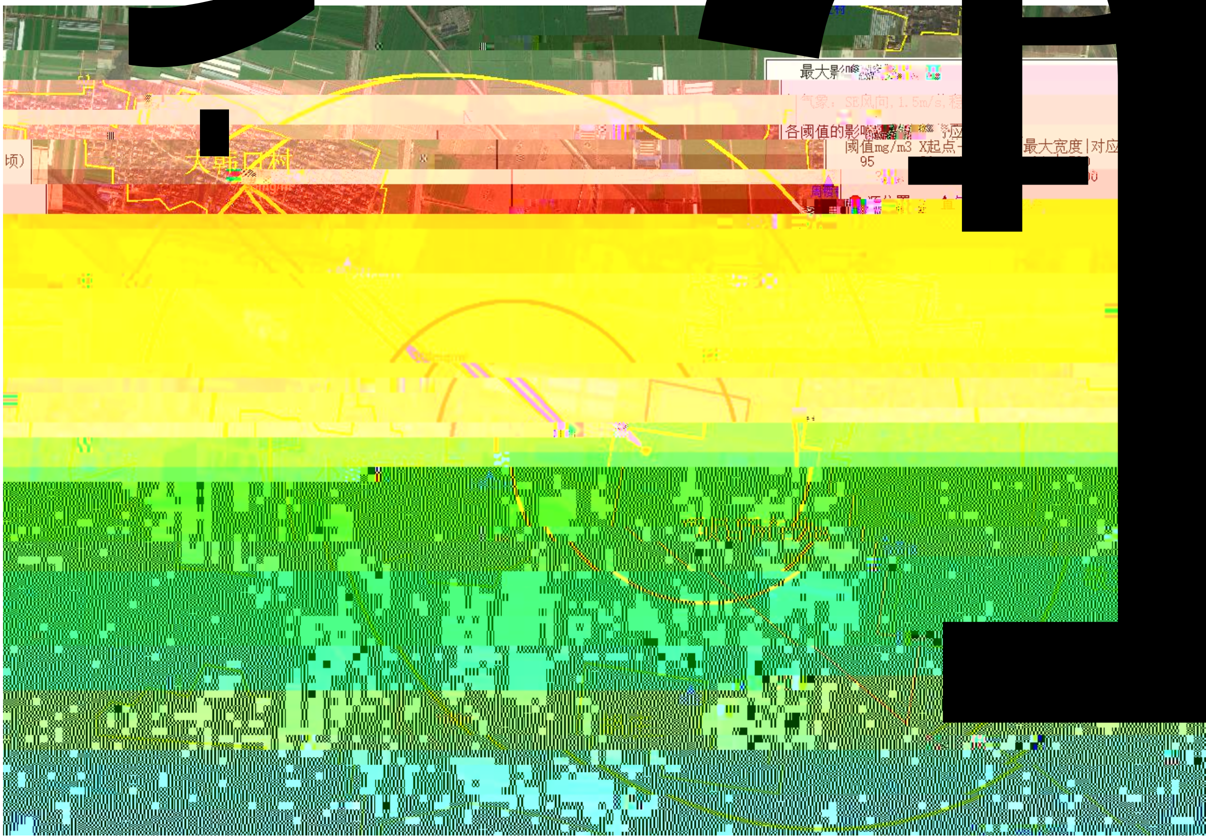
10	0.11	6.13E+04
20	0.22	1.05E+05
30	0.33	8.15E+04
40	0.44	6.03E+04
50	0.56	4.60E+04
100	1.11	2.01E+04
200	2.22	8.77E+03
300	3.33	4.98E+03
400	4.44	3.24E+03
500	5.56	2.29E+03
600	6.67	1.72E+03
700	7.78	1.34E+03
800	8.89	1.08E+03
900	10.00	8.90E+02
1000	11.11	7.49E+02
1100	12.22	6.41E+02
1200	13.33	5.55E+02
1300	14.44	4.86E+02
1400	18.56	4.30E+02
1500	19.67	3.89E+02
1600	20.78	3.58E+02
1700	21.89	3.30E+02
1800	23.00	3.06E+02
1900	24.11	2.85E+02
2000	25.22	2.66E+02
2100	27.33	2.49E+02
2200	28.44	2.34E+02
2300	29.56	2.21E+02
2400	30.67	2.09E+02
2500	31.78	1.98E+02
3000	38.33	1.55E+02
3500	43.89	1.27E+02
4000	50.44	1.06E+02
4500	57.00	9.05E+01

5000	62.56	7.87E+01

10	0.11	1.69E+05
20	0.22	2.90E+05
30	0.33	2.25E+05
40	0.44	1.66E+05
50	0.56	1.27E+05
100	1.11	5.55E+04
200	2.22	2.42E+04
300	3.33	1.37E+04
400	4.44	8.93E+03
500	5.56	6.31E+03
600	6.67	4.73E+03
700	7.78	3.69E+03
800	8.89	2.97E+03
900	10.00	2.45E+03
1000	11.11	2.07E+03
1100	12.22	1.77E+03
1200	13.33	1.53E+03
1300	14.44	1.34E+03
1400	18.56	1.19E+03
1500	19.67	1.07E+03
1600	20.78	9.86E+02
1700	21.89	9.10E+02
1800	23.00	8.43E+02
1900	24.11	7.85E+02
2000	25.22	7.33E+02
2100	27.33	6.88E+02
2200	28.44	6.46E+02
2300	29.56	6.09E+02
2400	30.67	5.76E+02
2500	31.78	5.45E+02
3000	38.33	4.28E+02
3500	43.89	3.49E+02

3000	38.33	2.52E+01
3500	43.89	2.05E+01
4000	50.44	1.72E+01
4500	57.00	1.47E+01
5000	62.56	1.28E+01





LNG

105000mg/m^3 20m -1 260000mg/m^3

-2 150000mg/m^3

290000mg/m^3

20m -1 260000mg/m^3 -2 150000mg/m^3

CO

CO

CO

1 $1050m^3$

	LNG				
	LNG	/	/	/Mpa	/
		/kg	/	/mm	10
/ kg/s	2.14	/min	10min	/kg	1284
/m	3	/kg	/		/
		/	25	/Mpa	/
		/kg	/	/mm	20
/ kg/s	5.9	/min	10min	/kg	3540
/m	5	/kg	/		/
			/		/min

				D1	D2	D3
		Q	Q<1	1≤Q<10	10≤Q<100	Q>100
		M	M1	M2	M3	M4
		P	P1	P2	P3	P4
			E1	E2	E3	
			E1	E2	E3	
			E1	E2	E3	
		IV+	IV	III	II	I
				/		
			SLAB	AFTOX		
			-1	460 m		
			-2	1150 m		
		/	/ h			
		/ d				
		/	/ d			

		116°55′19.03″	116°54′35.15″
		34°29′31.91″	34°29′32.41″
		10%	10%

	pH	8.35	8.27
	$cmol^{+}/kg$	1.5	5.2
	mV	117	106
	cm/s	9.0×10^{-5}	3.2×10^{-4}
	kg/m^3	1.94×10^{3}	1.95×10^{3}
		43.8%	42.7%

1

2

T5 5.2-17

GB36600-2018

10cm

6.2.6-5

	/

-

[2018]13

’I. 7 ɛ́m

E 10

SO_2 NO_X

		E F		
		a b c a b		
		1	Cd Hg As Pb Cr^{6+} Ni Cu 1 1- 1 2- 1 1- -1 2- -1 2- 1 2- 1 1 1 2- 1 1 2 2- 1 1 1- 1 1 2- 1 2 3- 1 2- 1 4- + 2- a a b k a,h 1,2,3-cd	1 /
		/		

1

1 10

[2013]2526

2 [2021]45

3

[2021]364

4 GB/T 32150-2015

5 5 GB/T 32151.5-2015

6

2021

7

[2021]179

6.06 CO_2/

1

NCV_i i

/ GJ/t GJ/ Nm^3

FC_i i t

Nm^3

EF_i

$$EF_i = CC_i \times OF_i \times \frac{44}{12}$$

CC_i i / tC/GJ

OF_i i %

净消耗量(吨)=购入量+(期初库存量-期末库存量)-钢铁生产之外的其他消耗量-外销量

7.2-1

GB/T 213

GB/T 384 GB/T 22723

7.2-1

			20.304	27.49	94%
			19.570	26.18	93%

14.080	28.00	96%
26.344	25.40	90%
8.363	25.40	90%
17.460	33.60	90%

5

i

CO_2

$$E_{电极} = P_{电极} \times EF_{电极}$$

$E_{电极}$ CO_2 tCO_2

$P_{电极}$ t

$EF_{电极}$ CO_2 tCO_2/t

CO_2

$$E_{原料} = \sum_{i=1}^{n} M_i \times EF_i$$

$E_{原料}$ CO_2

,Ï..É,´ C] • tCO₂ … 2@ÿÅ Õ

M_i *i* t

EF_i i CO_2 tCO_2/t Ï r

i

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$$R_{固碳} = \sum_{i=1}^{n} AD_{固碳} \times EF_{固碳}$$

$R_{固碳}$ CO_2 tCO_2

$AD_{固碳}$ i t

i CO_2 tCO_2/t

i

1		Nm^3	299.82	1200
2			511232.63	506499
3			44782.98	20600
4			307.09	27810
5			4313.58	5150
6			1529.92	2520
7	-			

1

2

1

1

3

4

[2021]364 /

$456671.1328tCO_2$

$25206.34627tCO_2$ $6.0tCO_2/$

$6.06tCO_2/$

/

60

m

RH

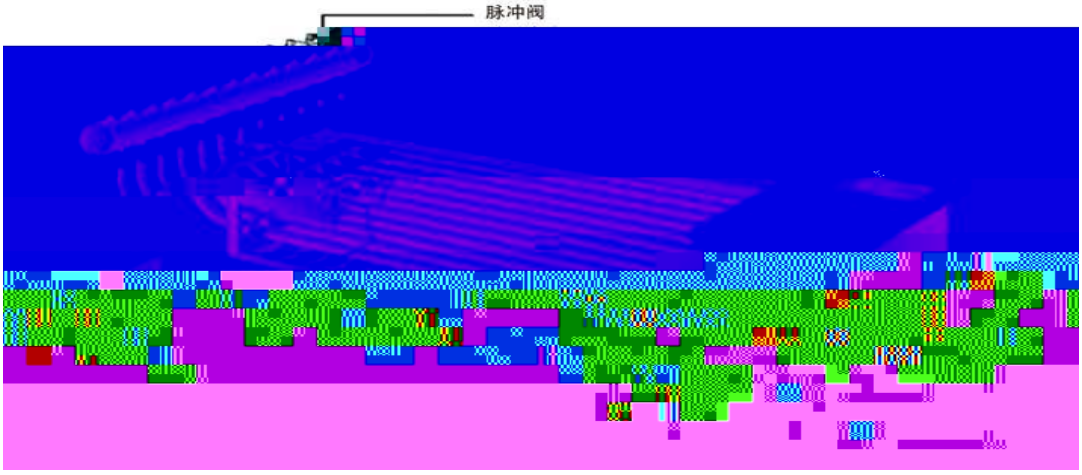
LF LF

LF

RH

9.8%

800~1500Pa



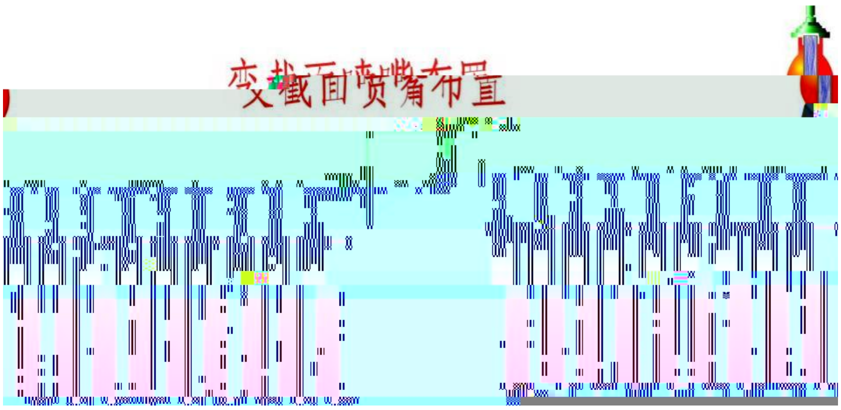
“ ”

eo

E 1mm

F 10 0

99.5 99.8% <10mg/Nm^3



“ ”

“ ”

1~2

99.5%

Ä2

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800 200

200~550

1

600000m^3/h

180

13570m^2

0.74m/min

Φ160mm*7500mm

YDMF-Y-76S

0.35~0.45MPa ~5m^3/min

<1200Pa

1~10g/Nm^3

≤10mg/Nm^3

2%

100%

2.31mg/m^3

3.0mg/m^3

2 +

1

+

1400000m^3/h

60

29350m^2

0.79m/min

Φ160mm*7800mm

YDMF-Y-76S

0.35~0.45MPa ~5m^3/min

<1200Pa

1~10g/Nm^3

≤10mg/Nm^3

2%

+

[2019]35

99.5%

2021 <10mg/m^3

3

1

1200000m^3/h

45

25675m^2

0.78m/min

Φ160mm*6000mm

SS

0 0.4 3 mg

<1

1~5g/Nm^3

mg/Nm^3

2%

+

99.5% + %

Ä

<10mg/m^3

5

4.3.1

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3

300~700 •

100MVA

$0.015ng\text{-}TEQ/m^3$ $0.5ng\text{-}TEQ/m^3$

+

$0.5ng\text{-}TEQ/m^3$

GB28664-2012 3

[2019]35

[2018]13

1

2

3

LF RH

Ä4

DCS

DCS

,

GB28664-2012 4

23803.83 8.1-4

1			1	1150
			1	
		+ 45m	1	4681.3
2	+		1	3500
		45m	1	6093.44
3		45m	1	7929.09
4		45m	1	300
			1	
6			1	150
				23803.83

23803.83 30 7.93%

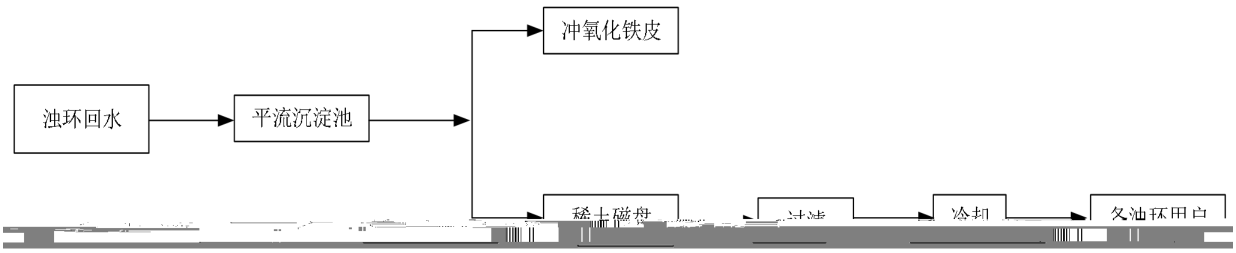
“ ”

1

LF RH

$26.7m^3/h$

2



“ ”

GB

18599-2020 Ãn GB 18597-2023

8.3-1

1	160000	160000	0
2	30550	30550	0
3	4800	4800	0
4	1500	1500	0
5	5000	5000	0
6	4947.03	4947.03	0
7	34.45 2	34.45 2	0
8	2500	2500	0
9	1 4	1 4	1

Ո

1

2

70

100

GB18597-2023

HB/T2025-2012 GB15562.2-1995

HJ1276-2022

23

[2019]149 [2019]327

é 93

8.3-2 8.3-3

1		HW23	312-001-23	6364.1					
2		HW49	900-041-49	16.56 2			/		
3		HW08	900-217-08 900-218-08	2					

1			HW23	312-001-23		$60m^3$	/	/	2
2			HW08	900-217-08 900-218-08	2 3	$256m^2$		50t	6

3

4

8.3-4

8.3-5

1

8.5-1 8.5-1

		GB18597-2023 1m $K \leq 1.0\times10^{-7}$cm/s 2mm $\leq 10^{-10}$cm/s
		GB18599-2020 II 1.5mm GB/T17643 0.75mm 1.0×10^{-7}cm/s

1

GB18597-2023

GB18599-2020

10cm

2

3

1

2

PLC

8.6-1

1	1
2	1
3	1
4	1
5	

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6

2

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GB50016-2014 GB50414-2007

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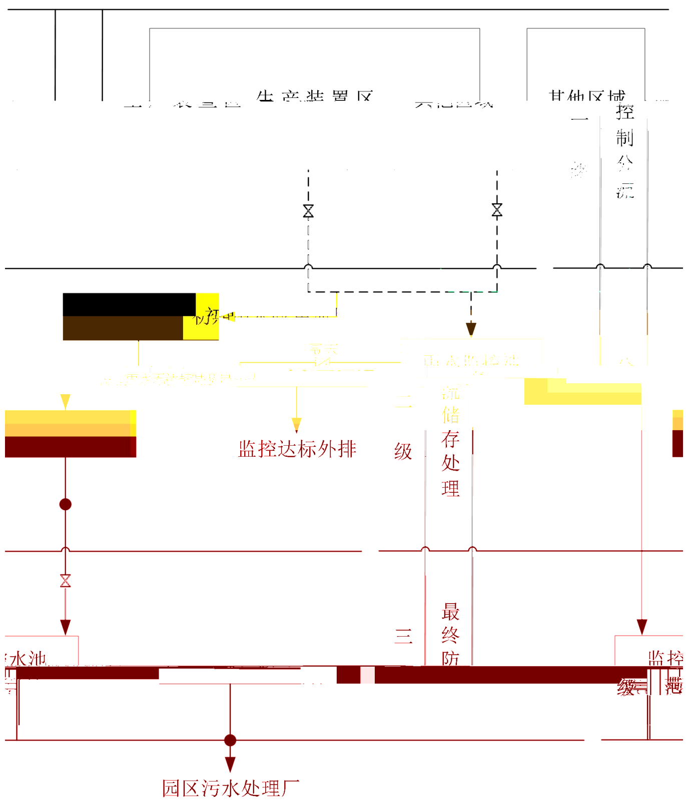
Ä15

LF

2

1



3

Q/SY1190-2013

V V_1 V_2-V_3 max+V_4+V_5

V_1 V_2-V_3 max V_1 V_2-V_3

V_1—

15m^3 15m^3

V_2—

162m^3/h

GB50016-2014 2h

2h 1

324m^3

V — m^3

V =10qf

q— mm

$q=q_a/n$

q_a — mm qa=766.1mm

n— 102.5

f— ha 9ha

V =10× 766.1/102.5 ×9=673m^3

V_3— m^3

m^3 V_3 0m^3

V_4— m^3 V_4

0m^3

V = $V_1+V_2-V_3$ $_{max}$+V $+V_4$= 15+324-0 +673+0=1012m^3

1050m^3

1

2

3

4

5

6

1

2

3 /

TN-C-S

4 1km

5

6

15~20min

7

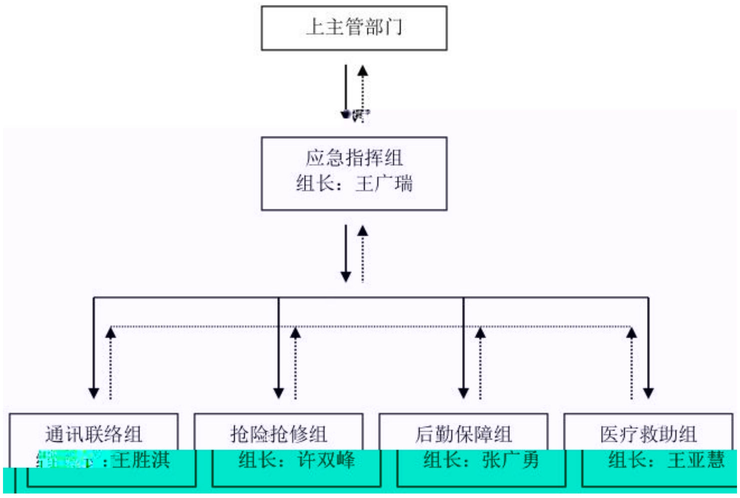
( )

2021 7

320322-2021-065-M

1

8.7-1



2

8.7-1 8.7-2

			/	13505224999
			/	15895254944
			/	13395221890
			/	13952160975
			68856565	18796371221
			/	15152075410
			/	15805220658
			/	13775817515
			/	15162041988
			/	13852130178
			/	13852135029
			/	13914892779
			/	13505215898
			/	13357935308
			/	13626172345
			/	15050024111

			/	15052002306
			/	13952228132
			/	15996871863
			/	15805219508

	120
	119
	0516-89622311 110
	0516-83739289
	0516-89677780
	0516-89639195 120
	0516-89659557 95598
	0516-89632364
	0516-83736564 0516-83719434 119
	0516-85956769
	0516-80800680 12369
	0516-85635680
	0516-80800600 12369
	0516-85583101 12320
	0516-83739289
	13605204491

1

8.7-3

1		CRPLI1-144-6.8-30-T	4		4 1
2		RH2KF6.8/30 SCBA2000	6		4 4 1 2
3		/	1		1 3
4		/	1		1 2
5		/	5		1 4
6		/	1		2 1
7		/	2		2 2
8		/	2		2 3

1		1	
2		10	
3		10	

8.7-1

2

8.7-2

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				24

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[2020]101

10200

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2m

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2~4 1

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2.5m

12 14 22 6

2.5m

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2017 78

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42

[2015]4

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36938.43 12.31% “ ”

8.9-1

					/	
					130	
					/	
					3	
					40	
					120	
					/	
“ ”	1 2023 2 1 $60m^3$			/	100	
					/	
					/	
	100m				/	

(GB185 023)

K $\times 10^{-7}$cm/s 2mm

\ 343142 4

1 7.23 6.31

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“ ”

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1

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3

4 TSP

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1

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4

5 “ ”

6

7

6

1

2

3

4

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8

9

1

2~3

1

< > [2016]186

[2016]186

2

[2015]256

3

	FQ-01				
	ZS-01				
	GF-01				

1

2

3

10.2-1 10.2-2

“ ”

108 m^3/a

16.776 m^3/a

1 LF 1

RH 1

1

1

1

1

40t/h

2 LF 1

		1	600000		3.0	1.08	7.81	10	/	45	4	453	7200h
					0.1ng-TEQ/m^3	0.036mg/h	0.26g/a	0.5ng-TEQ/m^3					
	+	1	1400000		1.5	1.72	12.4	10	/	45	5.8	333	7200h
					0.02ng-TEQ/m^3	0.023mg/h	0.17g/a	0.5ng-TEQ/m^3	/				
		1	1200000		2.0	2.06	14.83	10	/	45	5.8	318	7200h
				SO_2	0.019	0.02	0.05	50	/				
				NOx	0.155	0.16	0.4	150	/				
		1	280000		3.0	0.56	4.0	10	/	45	2.7	413	7200h
		23.76 t/a		COD SS				/	/	/	/	/	/
		1526.4 t/a		COD SS				/	/	/	/	/	/

			1.44 t/a	COD SS			/	/	/	/	/	/
					160000		/	/	/	/	/	
					30550		/	/	/	/	/	
					4800		/	/	/	/	/	
			/		1500		/	/	/	/	/	
					5000		/	/	/	/	/	/
					4947.03		/	/	/	/	/	
					34.45 2		/	/	/	/	/	
					2500		/	/	/	/	/	
					1 4		/	/	/	/	/	
					6364.1		/	/	/	/	/	

16.56   2

1

1 2

COD SS

2

SO_2 NO_2 PM_{10}

3

A Leq(A)

HJ878-2017

1

		1			
	+	1			
		1	SO_2 NO_X		
		1			
		1	pH COD SS BOD_5		
		2	COD SS	15	
		6			
		4	SO_2 NO_X		
		9	A		

2

10.3-2

		2	PM_{10} SO_2 NO_2	1 / 2 4
		1	Cd Hg As Pb Cr^{6+} Ni Cu 1 1- 1 2- 1 1- -1 2- -1 2- 1 2- 1 1 1 2- 1 1 2 2- 1 1 1- 1 1	1 /

2- 1 2 3-
1 2-
1 4-

46.0t/a	0.51t/a	4.05t/a	0.43g/a

					GB28664-2012		
			SO_2	/	/	/	0.46
			NO_X	/	/	/	3.65

		6.96
	SO_2	0.46
	NO_X	3.65

10.4-3

1		46.0
2		0.43g/a
3		0.51
4		4.05

10.4-4

		21.29
		0.53
		4.17

+		46.0	46.55	-0.55
		0.51	0.53	-0.02
		4.05	4.17	-0.12

10.4-6

< >

1

2

8.9-1

1993

100t

1 100t 1 130t

2 130tLF 1 130tRH

[2021]627 1 100 100 /

1:1 100 /

130 100 /

100 /

2022 1 24 [2022]37

2019

2015

[2018]32

2021 2021

$PM_{2.5}$ 42 / PM_{10} 75 /

SO_2 9 / NO_2 32 /

CO	1.2	/	O_3	156

39.04t/a $SO_2$0.05t/a NOx0.4 t/a 0.43g/a

6.96t/a $SO_2$0.46 t/a NOx3.65t/a

3

1

SO_2 NO_2 PM_{10} $PM_{2.5}$

100% SO_2 NO_2 PM_{10} $PM_{2.5}$

30%

PM_{10} $PM_{2.5}$ -20%

PM_{10} $PM_{2.5}$

2021 50m

ÔD

GB12348-2008 3 4

GB3096-2008 2

4

5

LNG 105000mg/m^3

20m -1 260000mg/m^3 -2 150000mg/m^3

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1

“ ”

2

3

4

5

6