10

2026 2

2019 35

SO_2 NOx VOCs 0.475t/a 0.23[illegible] 7.603t/a 8.637t/a

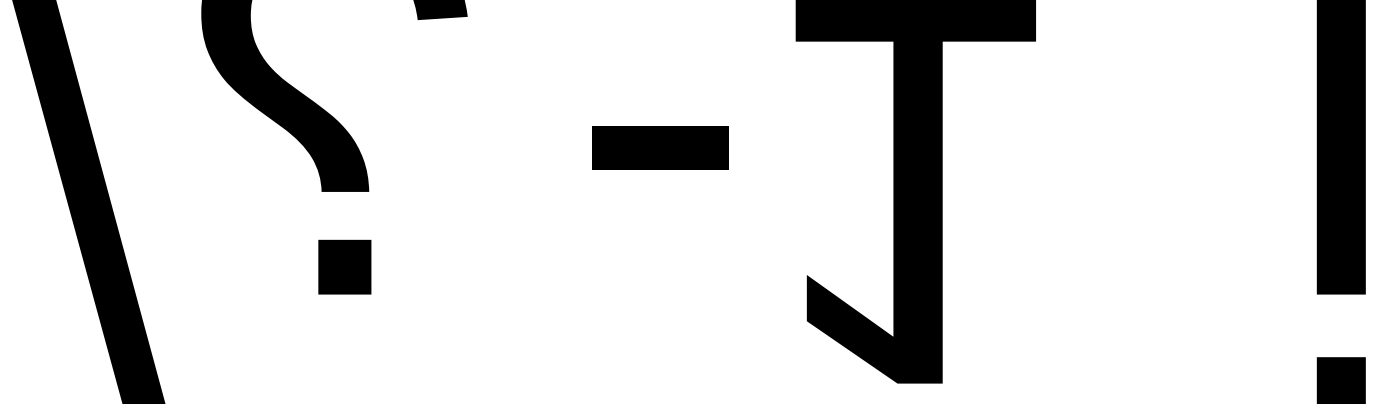
0.009% 0.008% 0.[illegible]% 0.11% [illegible]%

28.58t/d 0.2%

HJ610-2016

4

2022-2035



2.

C339

90%

3.

75%

4.

5. 500m

100m

6. 100

7.

1.

2. C3130

3. C3130

4.

5.

1.1-1

100m

6.

100m

7.

	2. 2035 SO_2 3131.28 / NOx 7110.10 / 5030.58 / VOCs 189.68 / 189.03 / 431.61 / 46.64 / 4.57 / 7.87 / 1.62 / 3. 2035 4.6 / 839.50 / 83.95 / 251.85 / 8.40 / 0.84 / 1.68 / 0.84 / 16.79 / 4. 2035 1497.58 tCO_2 5. ñ ò VOCs VOCs 6.	0.009% 0.008% 0.003% 0.11% 4.55% 3. 28.58t/d 0.2% 4. 5. VOCs 8.637t/a 6.	
	1. + 2. 3.	1. 2. 3. HJ610-2016	
	1. Ó95% Ó98% Ò20mg/Nm^3 Ò30mg/Nm^3 Ó6060kJ/m^3	1.	

6

1.1.2

2022-2035

1.1.3

1

2020 2025

-

- - - - -

230

10

2021-2035

1.1-2

2021-2035

1.2.3

1.2.1

			1. 1.5 2. 3.	1. GB28665-2012 3 2019 35 2.	

1.2.5

2014 5 14 2014 160

1

2

3

GB28665-2012

3 20 35

1.2.6

2015 7 22 2015 218

1

2 2020

(GB13456-2012) 2

1.2.7

2017 3 27 2017 49 '

1.2.8 “ ”

1

GB28665-2012

3

2019 35

2

2024

3

4

5

2015 4

1.2.9 “ ”

2022 4 21 2022 23

H @ 7$ $ K H @ ór

3

	2.1~2.3
	2.4

2.1

2025 1 24

10

2025 2 7

[2025]J020021 2502-350981-04-01-335880

2021

63

10 2025 5

10

2.1.1 ( )

31				
61	311		/	/
62	312 314		/	/
63	313	50		/

2.2

2.2.1

1 10

2

3

4 50000

5 53414.32m^2 37886.68m^2

6 100

7 330 7920h

2.2.2

2 1 1 1

20 3 4 2 2

1 6 2 7 20

5 1 10

10

2.2.1

2 4

1# 2

1

		1 27m 5 DA001~DA005 DA001 30000Nm^3/h H=27m Ï0.8m DA002 30000Nm^3/h H=27m Ï0.8m DA003 60000Nm^3/h H=27m Ï0.8m DA004 80000Nm^3/h H=27m Ï0.8m DA005 80000Nm^3/h H=27m Ï0.8m 2 1 27m 2 DA006~DA007 DA006 3000Nm^3/h H=27m Ï0.6m DA007 3000Nm^3/h H=27m Ï0.6m
		1 + + 1000m^3/d
		20m^2 20m^2
		600m^3

2.2.3

10

0.05 mm 0.8 mm

300 mm 650 mm

∧508 mm

∧2000 mm

12 t

Max.25mg/m^2

GB JIS EN ASTM API

2.2.4

2.2.2

2.2.2

3		ū300mm~650mm 120m/min		2
4		0.15 1.5mmǏ650mm		6
5		650mm		2
6		650mm		7
7		16		20
8		/		5
9		650mm		1
10		20 /h		1
11		/		10
12		600m^3/h		1
13		27Nm^3/min 0.7MPa		2
14		YPH-200-5N 200m^3/h		1

2.2.5

1

2.2.3

2.2.3

1		t/a	10.3	4000
2		t/a	15	
3		t/a	10	
4		kWh/a	200	/
5		Nm^3/h	360	/
6		m^3/a	110579.4	/
7		m^3/a	100	
8		m^3/a	917.4	/
9	PSA	kg/a	200	
10		kg/a	700	
11		m^3/a	77600	/
12		t/a	5	

200 300

450~650mm

Ò0.63-1.0mm

2.2.6

1

2.2.6

2.2.6

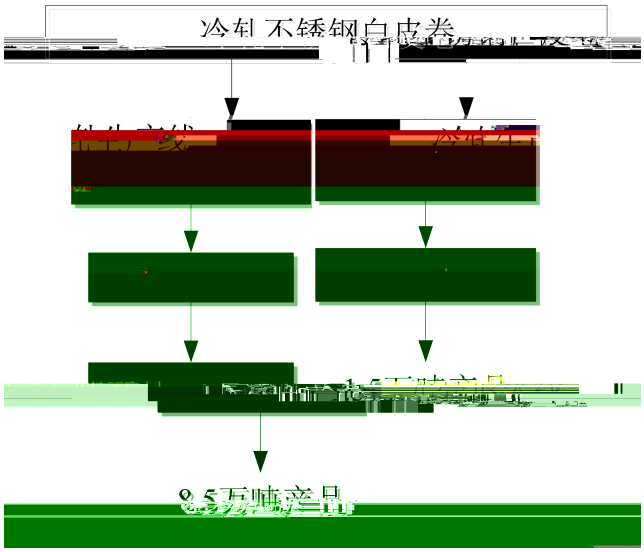


2.3

2.3.1

2.3-1

10 /

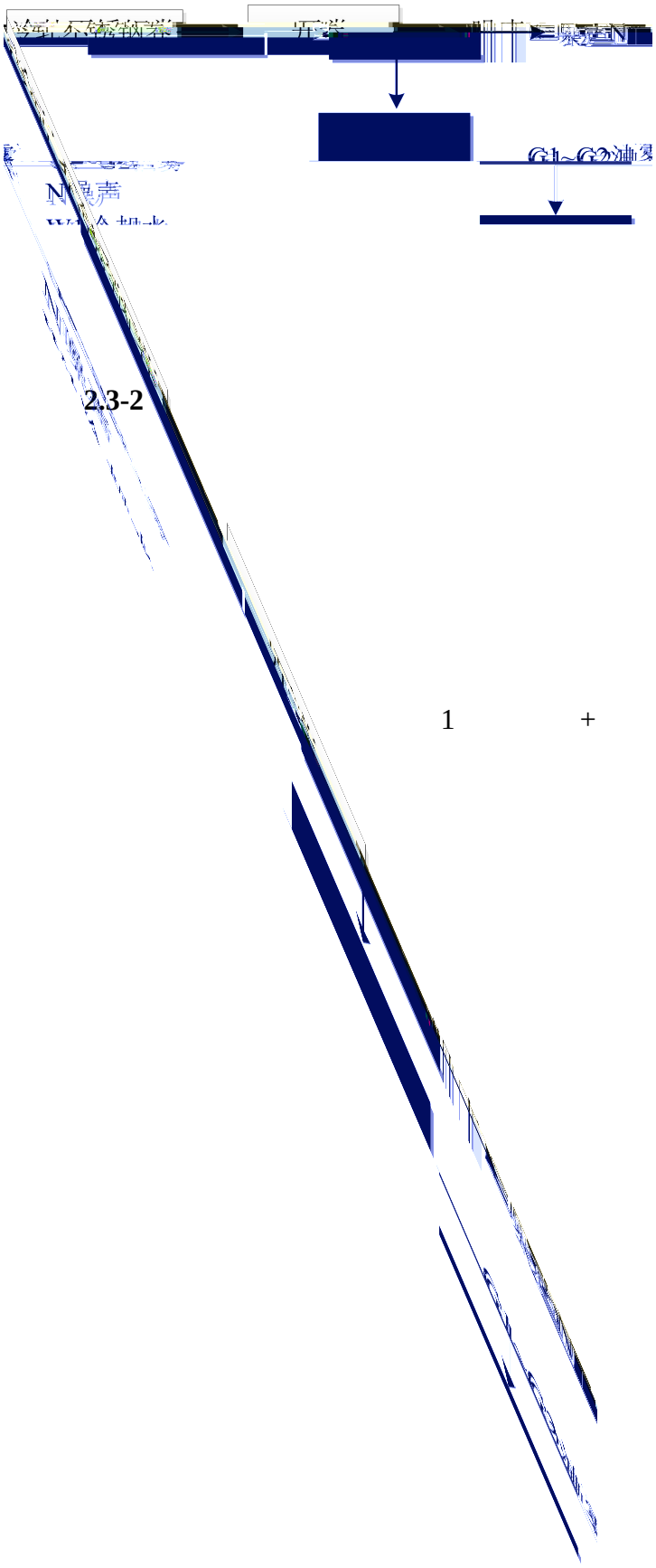


2.3-1

2.3.1.1

1

2 1 +



2.3-2

2

3 1 +

S1

S2 Ö

S3



3

W2 COD pH

W3 COD

N

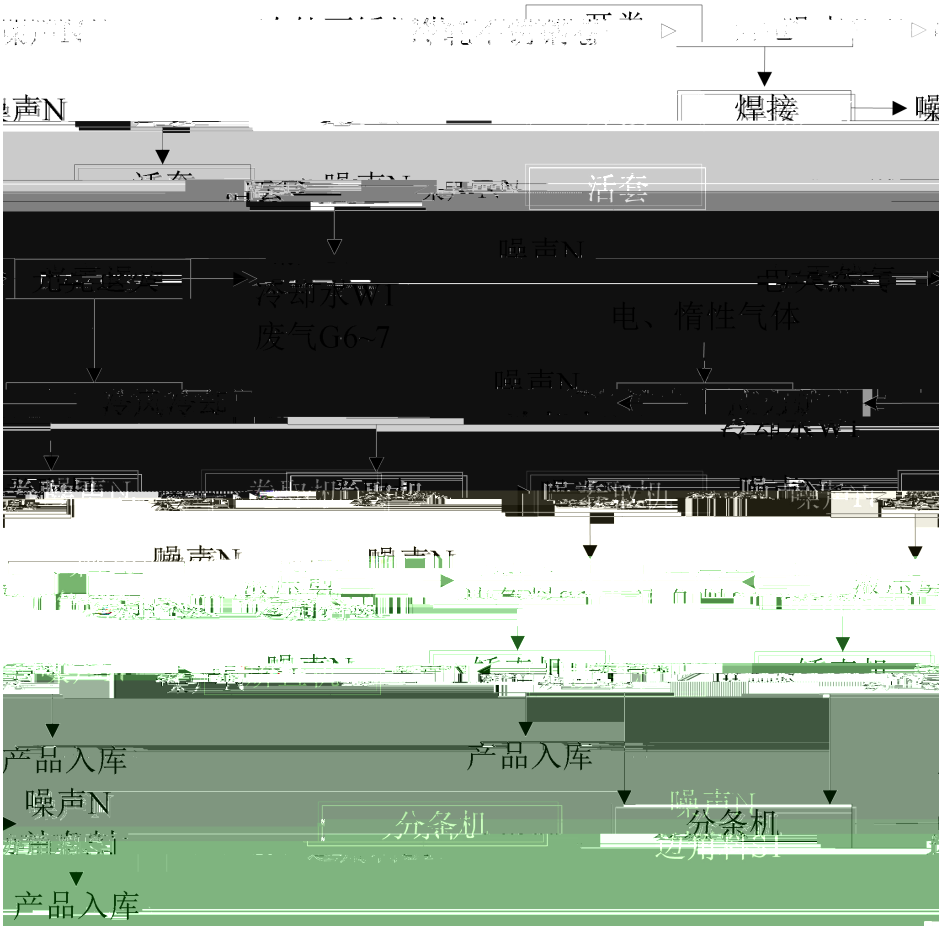
S1

2.3.1.3

1

1#~2#

3#~5# 5



2.3-5

2

W1

G6~G7 1#~2# SO_2 NOx

3#~5# 800 SO_2 NOx

N

S1

2.3.2

1

1

220 ~280

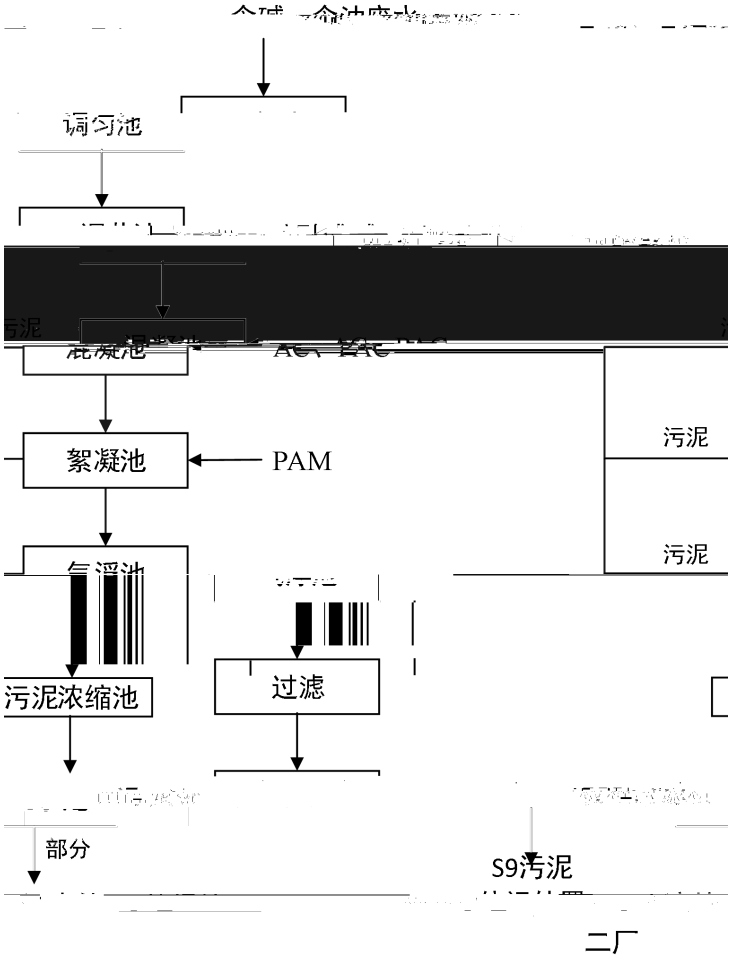
2.

>10bar RO RO RO 0.0001

U1

S5

S6



2.3-8

S9

3

2.3.1

W1	SS	
W2	COD pH	
W3	COD	
W4	COD SS	
W5	COD SS	
G1		27
G2		27
G3		

	3.1
	3.2
	3.3
	3.4

3.1

3.1.1

1 4

3.1.2

3.1.2.1

(HJ2.2-2018)

2024 2024

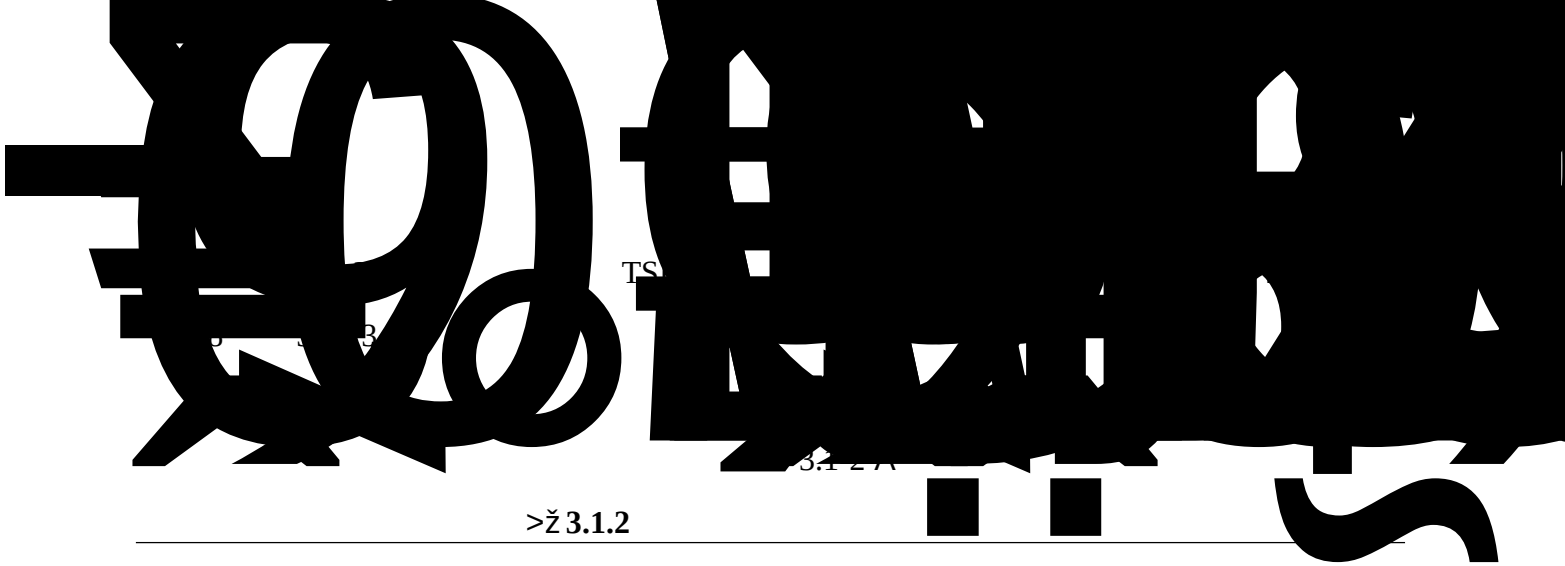
99.5%

GB3095-2012

3.1.1 2024

			PM_{10}	$PM_{2.5}$	CO	
	εg/m^3	εg/m^3	εg/m^3	εg/m^3	mg/m^3	εg/m^3
	5	10	29	18	1.2	110
	60	40	70	35	4	160

SO_2 NO_2 PM_{10}



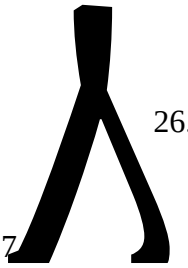
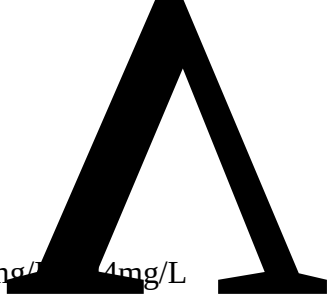
>ž 3.1.2

1	SP	7		2024	7	18	26
		3		2025	2	28	3 3

3.1.3

1

5# 6# 7# 12# 13# 14#

B2  26.0 B7 

2mg/ 4mg/L 31.5mg/L 44mg/L

B7 2mg/L B1

0.81mg/L 1.47mg/L 1.13mg/L

1.47mg/L B8 0.81mg/L B7

pH pH 7.68 7.99 *Pi* 0.02 0.19

7.99 B8

3.1.4

50

210m

50

3.1.5

53414.32m^2

3.1.6

3.1.7

3.2

500

3

3.2.1

			210m	350	GB3095-2012
			290m	2234	
			290m	40	
			385m	1000	
	50m				
	500m				

3.3

3.3.1

2020

12

2019 35

2014 1

GB28665-2012 3

3.3.1

GB16297-1996

2

DB35/1782-2018 3 3.3.2

3.3.1 **mg/m³**

		20		(GB28665-2012) 3
		10		2019 35
		50		
		200		

3.3.2 **mg/m³**

	12		GB16297-1997 2
	2.0		DB35/1782-2018 3

3.3.2

+ +

(GB13456-2012) 2

GB18918-2002 A

3.3.3 **mg/L pH**

		GB13456-2012 2		
1	pH	6~9	6~9	6~9
2		100	120	100
3	COD_{Cr}	200	360	200
4	BOD_5	/	100	100
5		15	30	15
6		35	40	35
7		2.0	3	2.0
8		10	15	10

3.3.4 **mg/L**

A

1 pH 6~9 6~9

2 COD Ò50 Ò75

. 0

3.3.4

GB18599-2020 GB18597-2023

3.4

ñ ò

( ) [2014]24

< >

[2014]9

[2014]43 CODcr

NH_3-N SO_2 NO_X

3.4.1

SO_2 NO_X VOC_S 3.4.1

3.4.1

t/a

t/a 0.415

COD 0.208

0.021

0.47

	4.1
	4.2
	4.3
	4.4
	4.5
	4.6
	4.7
	4.8

4.1

4.1.1

4.1.1.1

1

60%

TSP 50 100m

2

CO CO_2 O_3 NO_X CH_4 CO

3

CO 60-80mg/m^3

THC 80-100mg/m^3

4.1.1.2

1

10

1

0.3t

4.1.1

4.1.1

	dB	A	m
2	82		5
5	85		5
5	79		1
10	95		1

J

4.2

4.2.1

2

4

SO_2 NOx

HJ885-2018 A.1

4.2-1

4.2.1

			1. **2.**	1. 2.
		SO_2	**1.** **2.**	1. 2. 3.
		NOx		1. 2.
				1. 2.

4.2.1.1

1

30

4 1 20 2 28m 15

20m 2 24m 3 1 10 /

4 20

ó95%

90% + ó95%

90% 2024 6 2

2025 4.2.1

ND~2.0mg/m³ SO_2 NOx

81~160mg/m³ 0.6~1.0mg/m³

0.3~2.9mg/m^3

2

30 20

6 3#~6#

K_N	1
M	32.04
P Pa	12970
Kc 1.0	1
kg/m^3	0.174
t/a	0.205

4.2.3

	2
t/a	0.410
kg/h	0.052

7920h

$$L_B=0.191ĭM(P/(100910-P))^{0.68}ĭD^{1.73}ĭH^{0.51}Ĭ \quad T^{0.45}ĭF_PĭCĭK_C$$

LB kg/a

M

P Pa

D m

H m

T 10

F_P 1.39 1.02

C 0~9m C=1-0.0123

D-9 2 9m C=1

K_C KC 0.65 1.0

4.2.4

M	32.04
P Pa	12970
D m	3
H m	0.4
T 10	10
F 1.39 1.02	1.20
C	0.5572
Kc K_C 0.65 1.0	1.0
	0.9
t/a	0.0118
kg/h	0.0014

4.2.5

	2
t/a	0.0237
kg/h	0.0030

7920h

4

4.2.1.3

0

4.2.6

4.2.7

		m	m	m		kg/h
M1		90	20	3		0.045
M2		180	23	3		0.33
M3		15	11	7.3		0.003

4.2.8

		(mg/m^3)	(kg/h)
G1		15	0.45
G2		15	0.45
G3		15	1.8
G4		15	2.4
G5		15	2.4

4.2.2

4.2.2.1

1

90%

4.2.2.2

1#~2# SO_2

HJ-BAT-006

SO_2 NO_X

Ò160mg/m^3 Ò2.0mg/m^3

[2019]35

1#~2#

NOx SO_2 2019

35 Ò10mg/m^3 SO_2

Ò50mg/m^3 NOx Ò200mg/m^3

4.2.2.3

200m 23.9m

27m (GB28665-2012)

200m 3m

4.2.2.4

1

2

4.2.4

GB/T16157-1996

4.3.2

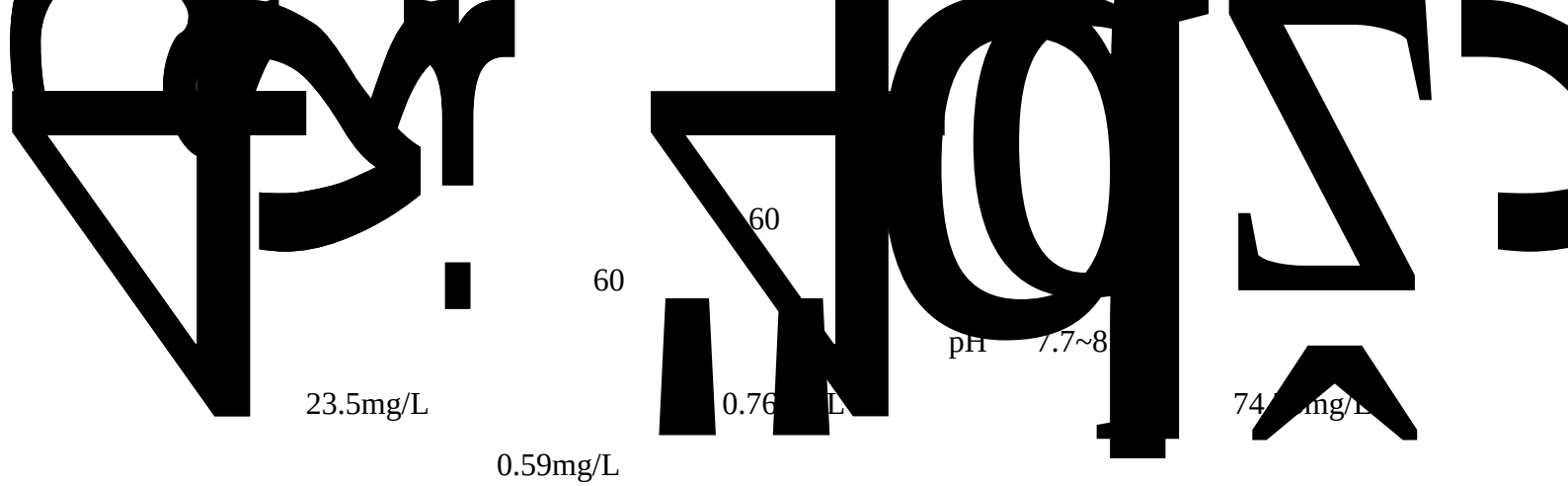
4.3.2.1

4.3.2

4.3-1

4.3.2

1 60t/ + +



60

60

pH 7.7~8

23.5mg/L 0.76 L 74 mg/L

0.59mg/L

(GB13456-2012) 2

+ +

ð (HJ846-2017)

3

1.5 t/d

2026

1

2026 12

4.3.3

(GB13456-2012) 2

(GB18918-2002) 1 A

4.3.4

HJ 819

HJ 878

4.3.4

		pH COD	1 /
		SS	1 /

4.4

4.4.1

(HJ885-2018) G

85 95dB(A)

4.4.2

1

A

2

HJ2.4-2021

3

3

4

5

6

4.4.4

HJ1301-2023

4.4.3

	1m	A	1 /

4.5

4.5.1

1

RO

2

3

100 1.0kg/d 33t/a

4.5.2

/

1

RO

RO

1

20m^2

GB18599-2020

GB15562.2

2

HW08 HW49

20m^2

(GB18597-2023)

4.5.2

			t/a		t		
1		HW08(900-204-08)	6.8		2	3	2m^2
2		HW08(900-213-08)	5.6		1.5	3	1.5m^2
3	( )	HW08(900-210-08)	80		10	1	10m^2
4		HW49(900-041-49)	1/5a		/		/
5		HW08(900-249-08)	10		2		/
6		HW08(900-249-08)	1		1	6	1m^2
7		HW49(900-041-49)	0.5		0.5	6	1m^2

3

4.5.3

1

$20m^2$

GB18597-2023

GB18599-2020

GB18597-2023

2

4.6

4.7

4.7.1

(GB13456-2012) 2

4.7.2

1

HJ610-2016

4.7.1

				MbÓ6.0m KÒ1Ĭ10^{-7}cm/s
	ð			
		ð		MbÓ1.5m KÒ1Ĭ10^{-7}cm/s
	ð			
	ð			

4.7.2

1

2

3

4

HJ610-2016

Ó6.0m Ò1.0Ĭ10^{-7}cm/s

GB18597-2023

1m

10^{-7}cm/s 2mm

10^{-10}cm/s

B

HJ610-2016

Ó1.5m Ò1.0Ĭ10^{-7}cm/s

(GB18599-2020)

C

HJ610-2016

A.

B.

C.

D.

E.

F.

3

HJ 1209

2021 4

1 3

pH

1

4.8

4.8.1

1

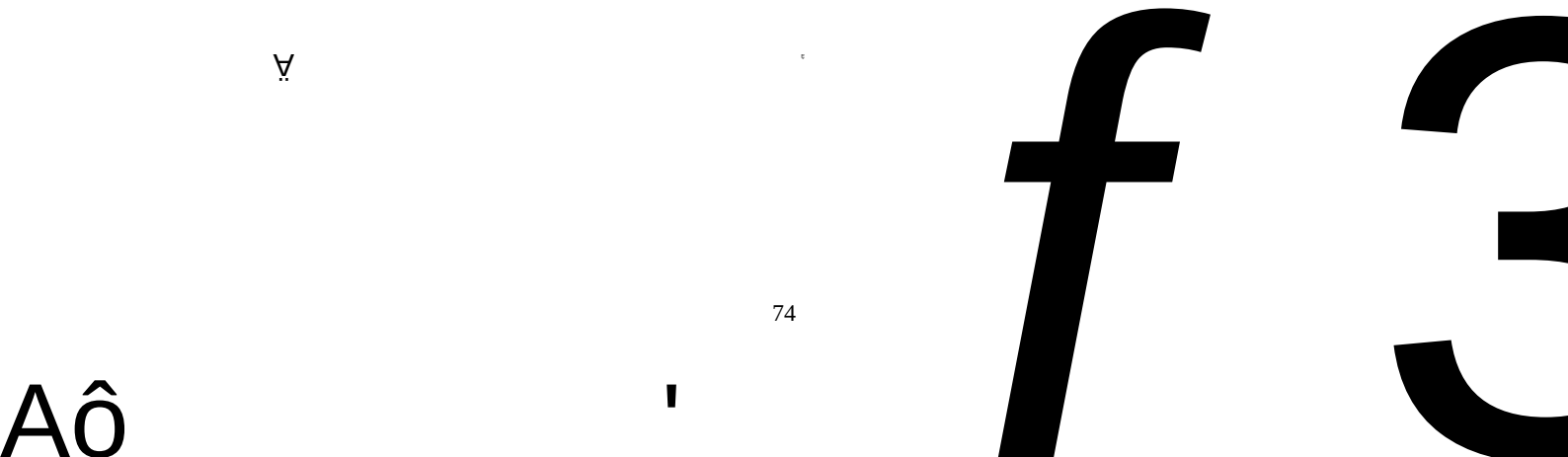
4.7.2

2

3

1000-1250

Ä



DA001	+ 1 30000Nm^3/h H=27m			
DA002	+ 1 30000Nm^3/h H=27m			
DA003	+ 1 60000Nm^3/h H=27m		GB28665-2012	3
DA004	+ 1 80000Nm^3/h H=27m		≤20mg/m^3	
DA005				

≤10mg/m^3

pH CODcr
BOD_5 SS
NH_3-N TP
TN

pH6-9
COD≤200mg/m^3
BOD_5≤100mg/m^3
SS≤100mg/m^3
≤15mg/m^3
≤2.0mg/m^3
COD≤35mg/m^3

A

(GB12348-2008) 3
(Ò65dB(A)
Ò55dB(A))

GB18599-2020

	2 48 2019 2017 84

10

2026 2

5 2015

6 2017

7 2003

8 445

2

HJ169-2018

HJ169-2018

2.1

2.1.1

m

E E1

س 1%

س

30%

VOCs Ò50%

3

2.3

1

2

2.2.2

			1 2 3 4

/

3

4

5

2.4

1

/

2

3 /

CO

4

2.4.1

1

2

4

5

3.1.1 Q Q

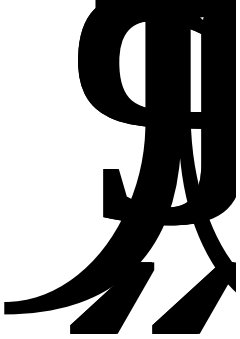
Q=8.065 10

3.2 M

HJ169-2018 C.1

M 1 M 20 2 10 MÒ20 3 5 MÒ10 4 M=5

M1 M2 M3 M4



3.2.1

3.4.1

E1	**5km** **5** **500m** **1000** **200m** **200**
E2	5km 1 5 500m 500 1000 200m 100 200
E3	5km 1 500m 500 200m 100
	3624 **5 km** **16060** **E1**

3km

15

+ +

(GB13456-2012) 2

600m^3

2000m^3

10000m^3

D

3.4.5

	G1	G2	**G3**
D1	E1	E1	**E2**
D2	E1	E2	E3
D3	E1	E2	E3

3.4.6

G1

G2

a

G3

G3

G4.6ั

3.5.1

E	P1	P2	P	P4
			P3	
E1	IV^+			III
E2	IV	III	**III**	II
E3	III	III		
	IV^+			

4

4.1

Ã

4.3.1 50m^3

CO

4.3.1

	2 50m^3			
	CO	CO		

5

5.1

1

EIAproA AFTOX

AFTOX

2

F 1.5m/s

25 50%

5.2

1

2 50m^3

30min 10mm

HJ 169 - 2018 F.1.1

$$Q_L \quad C_d A \sqrt{\frac{2 P \quad P_0}{} \quad 2gh}$$

QL ð ð kg/s

Cd ð ð Re 100 0.65

A ð ð 10mm 0.0000785m^2

Ɉ ð ð 791kg/m^3

P- P0 ð 0Pa

g ð ð 9.81m/s^2

h ð ð 1m

30min

5.2.1

5.2.1 a n

	n	a
	0.2	3.846Ĭ10^{-3}
	0.25	4.685Ĭ10^{-3}
	0.3	5.285Ĭ10^{-3}

5.2.2

		(cm^2)	(kg/s)	(min)	(kg/30min)
		0.785	0.18	30	324

40m^2

64.7

HJ169-2018 Q_3

$$Q_3 \quad a \quad p \quad M / R \quad T_0 \quad u^{(2\ n)/(2\ n)} \quad r^{(4\ n)/(2\ n)}$$

Q_3 ð ð kg/s

Ŭ,n ð ð 5.2.1

p ð ð Pa

M ð ð kg/mol

R ð ð J/molĿk

T0 ð ð k

u ð ð m/s

r ð ð m

5.2.3

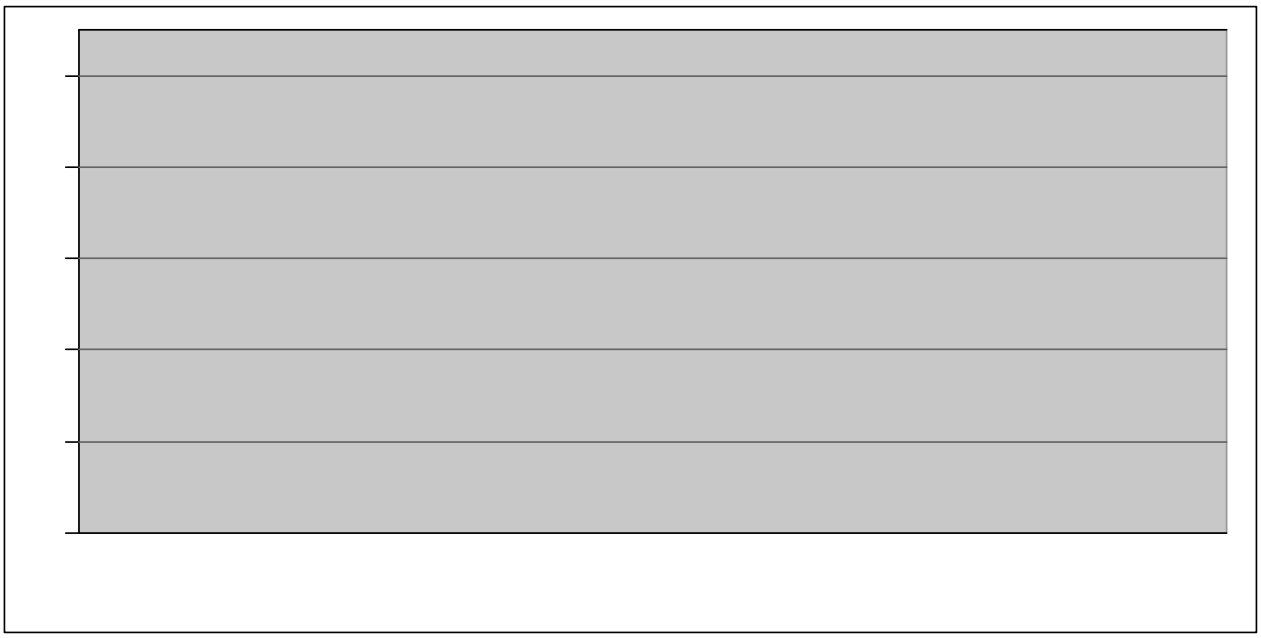
5.2.3

(kg/s)

m^2 m/s

(E F)

41 1<< ᔕm"



5.3.1

5.3.1 CO

		CO kg/s
	CO	0.0094

2

AFTOX

a

AFTOX F

1.5m/s 25 50% -1 380mg/m^3

-2 95mg/m^3 70m 180m 5.3.2

5.3.2 CO

	kg/s		(m)
(F) 1.5m/s	0.0094	-1(380mg/m^3)	70
		-2(95mg/m^3)	180

b

AFTOX

CO 5.3.3 4426.90mg/m^3 0.11min

10m -2 95mg/m^3 2m 0.33min

30m 5.3-1

5.3.3 CO

m	min	mg/m^3
10	**0.11**	**4426.90**
20	0.22	1762.20
30	**0.33**	**1096.40**
40	0.44	798.24
50	0.56	617.19
60	0.67	493.55
70	**0.78**	**404.36**
80	0.89	337.75
90	1.00	286.65
100	1.11	246.60
110	1.22	214.61
120	1.33	188.64
130	1.44	

160	1.78	121.70
170	1.89	110.75
180	**2.00**	**101.27**

5.4.1 LC50

5.4.1 10%

5.4.1 %

Q	LC50					
	200	200 1000	1000 2000	2000 10000	10000 20000	20000
100	5	10				
100 500	1.5	3	6			
500 1000	1	2	4	5	8	
1000 5000		0.5	1	1.5	2	3
5000 10000			0.5	1	1	2
10000 20000				0.5	1	1
20000 50000					0.5	0.5
50000 100000						0.5
LC50 mg/m^3 Q t						

0.017kg/s*10%=0.0018kg/s

5.4.2

m min mg/m^3

1

		/	/

5.5

1

2

3

4

6

6.1

1

2

2 10

6.3

Q/SY08190-2019

$$V = V_1 + V_2 - V_3 \text{ max} + V_4 + V_5$$

$$V_2 = \times Q \ .t$$

$$V_5 = 10q.f$$

$V_1 + V_2 - V_3$ max $V_1 + V_2 - V_3$

V_1 ð ð m^3

V_2 ð ð m^3

V_3 ð ð m^3

V_4 ð ð m^3

V_5 ð ð m^3

q ð ð mm

1 2 50m^3 V_1=100m^3

2 GB50974-2014 1

3 0

$V_3=50$

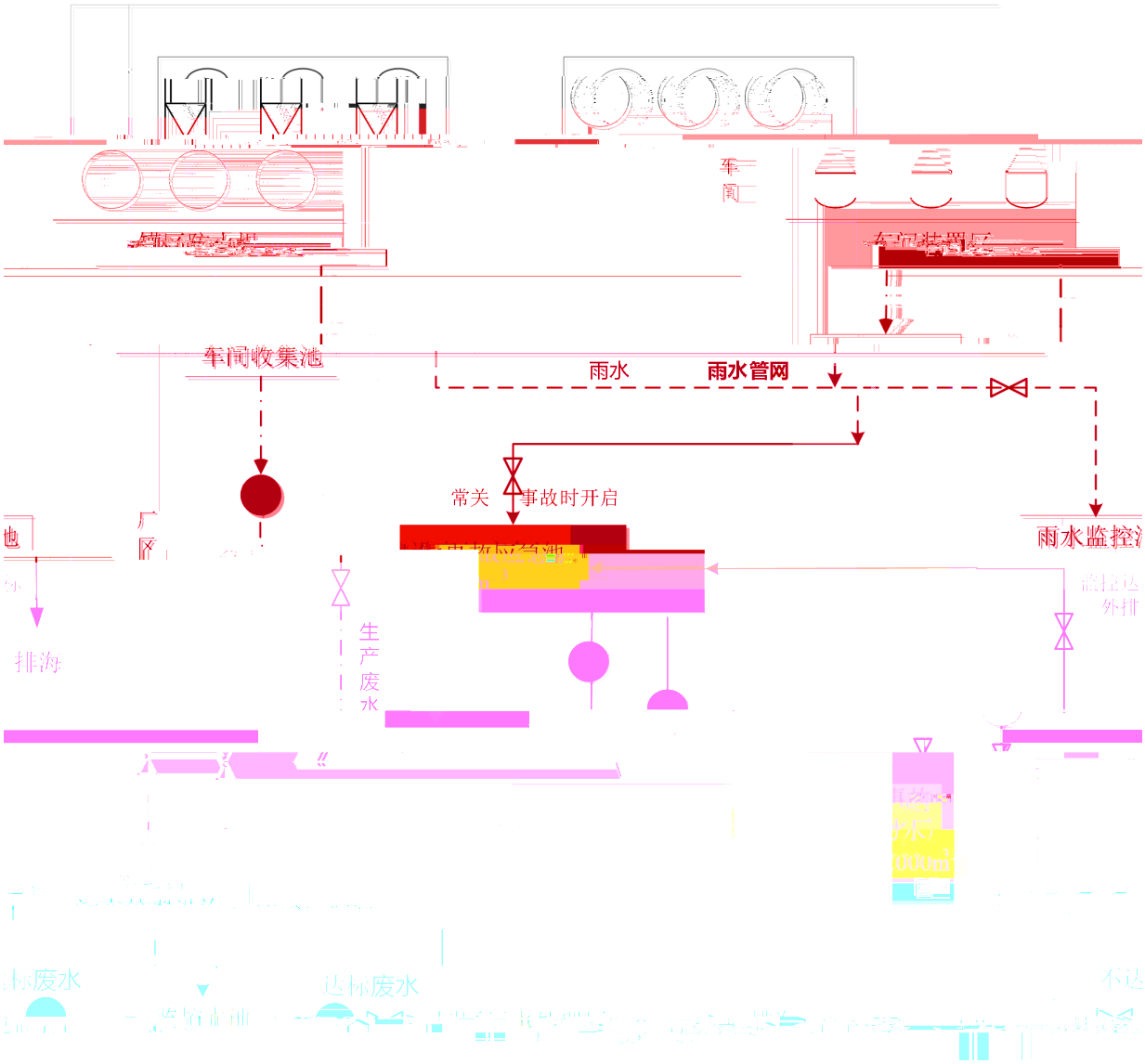
d.

20mm

600m^3

2000m^3

10000m^3



6.4-1

7

1

\+ \+

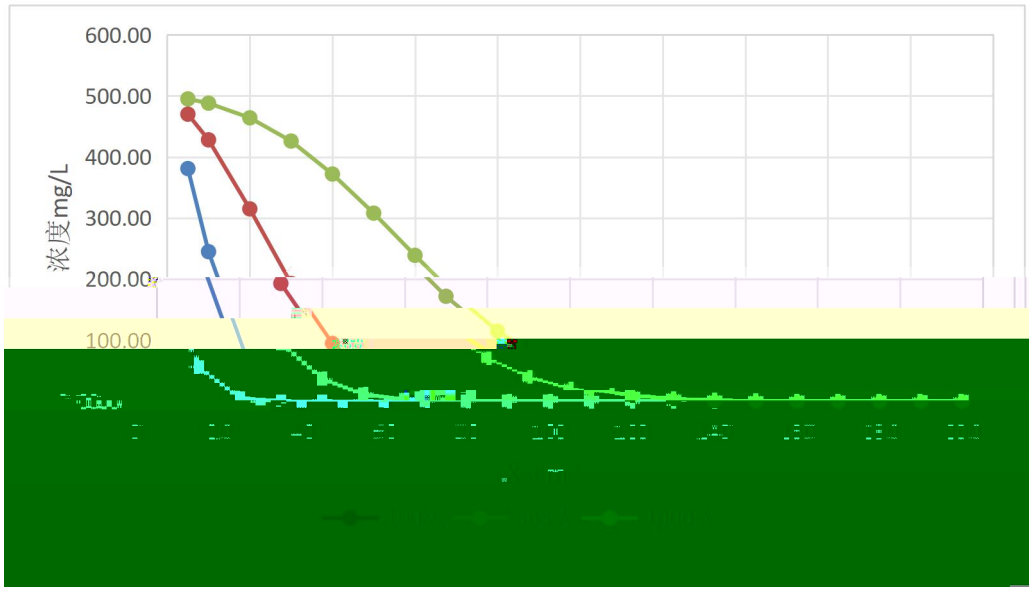
(GB13456-2012) 2

2

$90m^3$

COD 500m

155			0.35
160			0.20
165			0.11
170			0.06
175			0.03
180			0.02
185			0.01
190			0.00

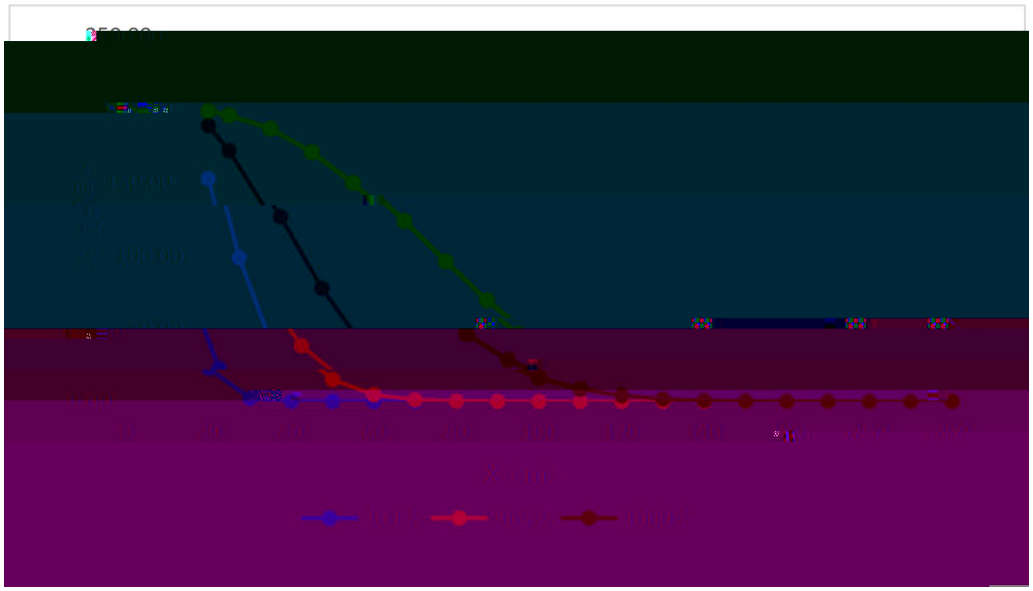


7.1-1 COD

7.1.2

X(m)	100 mg/L	365 mg/L	1000 mg/L
5	200.00	200.00	200.00
10	152.00	188.00	198.00
15	98.00	171.00	195.00
20	52.10	150.00	191.00
25	22.50	126.00	186.00
30	7.84	101.00	178.00
35	2.18	77.10	170.00
40	0.48	55.70	160.00
45	0.08	38.00	149.00
50	0.01	24.50	137.00
55	0.00	14.90	123.00
60		8.53	109.00
65		4.58	95.50
70		2.32	81.90
75		1.10	68.90
80		0.49	56.90
85		0.20	46.00

90		0.08	36.50
95		0.03	28.30
100		0.00	21.50
105			16.00
110			11.70
115			8.30
120			5.77
125			3.93
130			2.61
135			1.70
140			1.08
145			0.70
150			0.41
155			0.24
160			0.14
165			0.08
170			0.04
175			0.02
180			0.01
185			0.01
190			0.00



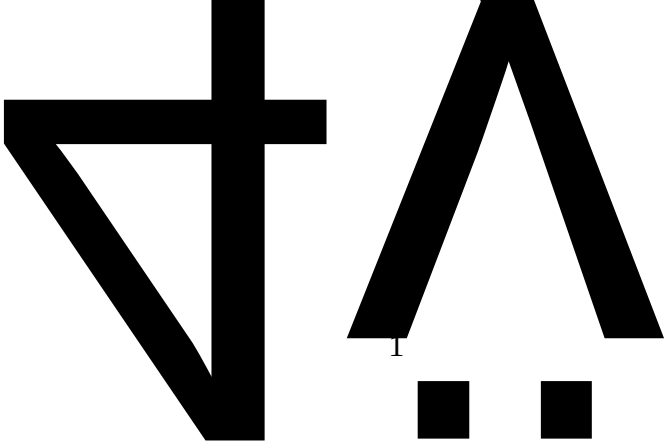
7.1-2

COD 100 365 1000

50m 105m 190m 100 365 1000

55m 100m 190m

1



1

2 GB/T50934

- HJ 610-2016 GB/T50934

4.6.2

8

6.4

1

2

3

1 1

2

3

2

3 MSDS

4

5

6

1

2

3

4

1

2

CO

3 CH_4

CH_4

1

2

2

3

4

9

2015

4 HJ169-2018

10

CO

600m^3 2000m^3

10000m^3

	0	0	0	0.475	/	0.475	+0.475
SO_2	0	0	0	0.238	/	0.238	+0.238
NOx	0	0	0	7.603			