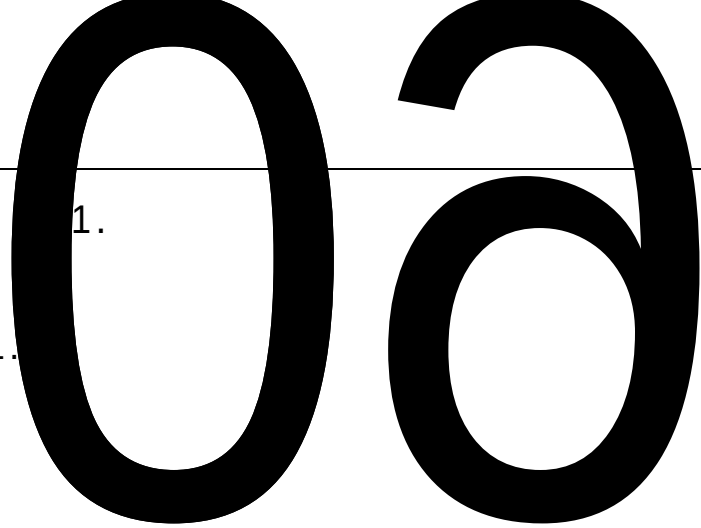




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1.2.1

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2021

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2014 1 1

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2011

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	7				2011	591	2011	
12	1	2013	12	7	2013	645		
	8				2018	708	2019	4
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	9							
		2022	4	21				
	10							17

		2020	3			
6				<		
>		2021	12	2021	12	31
7						
		2020	3	2020	4	1
8						
					2022	6
					2022	4
2						
9					2021	
				2021	107	
10						2021
				2021	210	
11						
					2021	129
12						
					2021	□ 4
						14
13					2015	
				2022	300	
14						

26

2014 116 2014 11 13

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() 2017 121 2017 11

13

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2017 45 2017 12 23

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2017 99 2017 12 28

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2020 1 2020 2 13

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2021 41

32

2021 1

33

 $\angle$ $\succ$ $\angle$
$$>$$

2019 78

2019 8 12

34

 $\angle$

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(2021 18)

35

2022 57

36

2023 74

2023 Ó5

2024 ' 0 m 'm "'

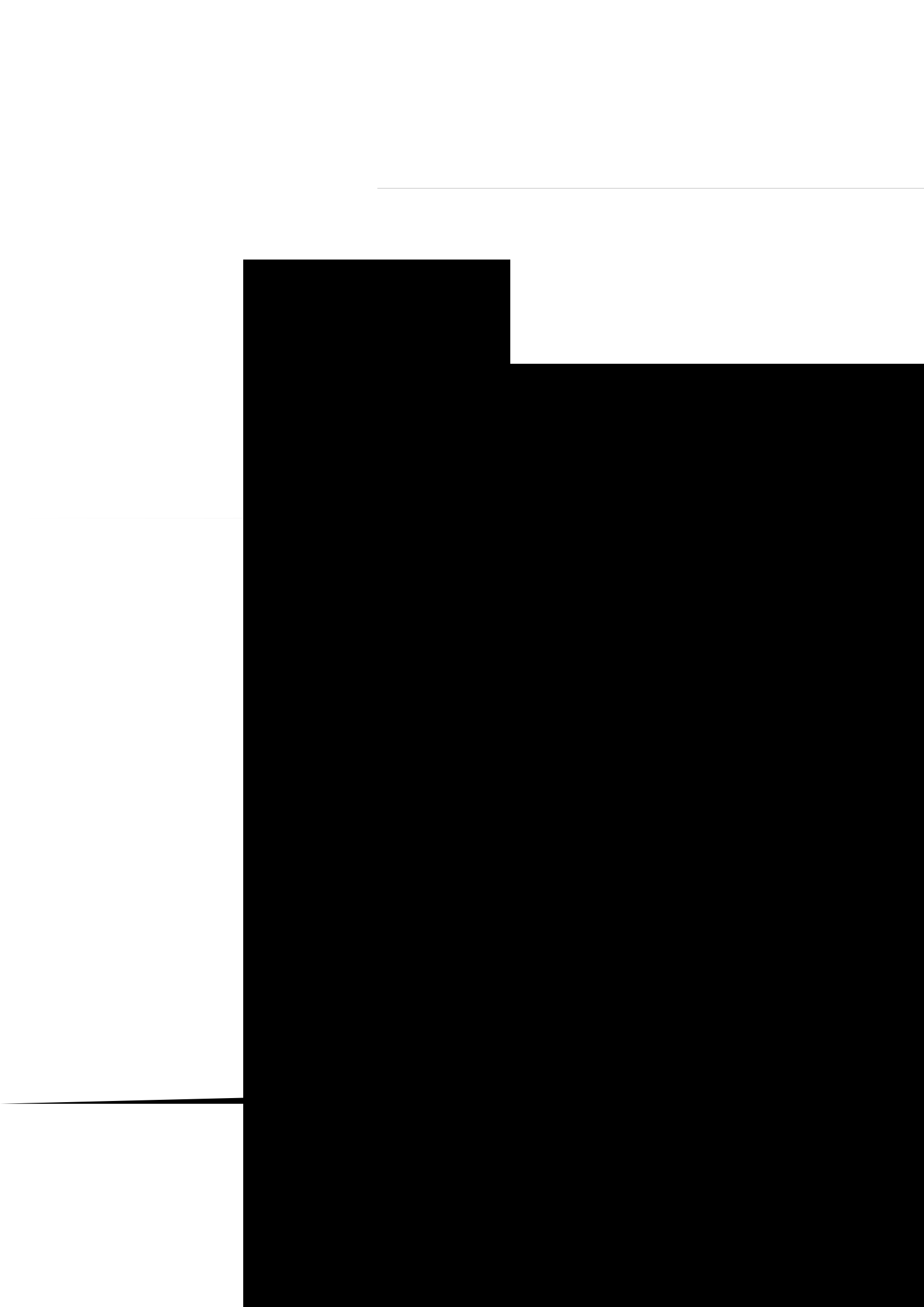
5

2010 070

2012 012

202110

11		TSG21-2016
12		AQ/T3046-2013
13		(GB50116-2013)
14		GB50140-2005
15	2018	GB50016-2014
16		



1.5

CIT 5- -2- -4- -3-

MIT 2- -4- -3-

CIT/MIT 5- -2- -4- -3- 2- -4- -3-

BIT 1,2- -3-

OIT 2- -4- -3-

DCOIT 4 5- -N- -4- -3-

DCS

SIS

GDS

UPS

2.

2.1

2.2



2.2-1

2.2-2

2.2-2

			GB50016-2014 3.4.1
			GB51283-2020 4.2.9
			GB51283-2020 4.2.9
			GB51283-2020 4.2.9
			GB51283-2020 4.2.9 9
			GB51283-2020 4.2.9 1
			GB51283-2020 4.2.9
			GB50016-2014 2018 3.4.12
			GB50016-2014 2018 3.5.1
			GB51283-2020 4.2.9
			GB50016-2014 2018 3.5.2
			GB50016-2014 2018 3.5.2
			GB50016-2014 2018 3.4.12
			GB50016-2014 2018 3.4.12
			GB51283-2020 4.2.9
			GB50016-2014 2018 3.5.1

2.2-2

2.3

VII

0.15g

10.5

-25.1

35.3

65%

60%

70%

3.8m/s

5.0m/s

28.5m/s

25%

23%

0.67kPa

30

10min

33.0m/s

580 750mm

7 8

981.6mm

289.5mm

66.1mm

184.6mm

218.0mm

380mm

40kg/m²

18.2d

30d

15d

930mm

4month

2.99m

0.54m

1.6m

-0.81m

165 185d

2600 2900h

143.3kcal/cm²

2.4

β E η

7

2.4-2

2.4.3

2.4-3

2.4-3

2.5

2.6

2.6.1

14

2%

650

5

2.6.2

2021 12

2024 4 10

2.7

2.7.1

SIS

GDS

DCS



1
1
2
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2

UPS

2#

$\leq 3, \text{ \AA}$

GDS

3	DCS								
DCS						-			
					DCS		HOLL IAS MACS-K		
1		7							
2				2				50%	
I/O						20%			
3		1							
4	CPU			CPU					
5		1:1		DCS					
6						1:1			
7	I/O	20%				I/O			
8									
	I/O							≥ 500V	
				50%	DCS				

IEC61508 SIL3

4 SIS

SIS

2.7-1

2.7-1

	SIF
1	V1215A/B/C/D V1301A/B XZV-W1201A/B/C/D XZV-W1301A/B
2	V2201/V2301 XZV-W2201 XZV-W2301A
3	V3601A/B/C/D XZV-3601A/B/C/D
4	V3301A/B 3401A/B XZV-W3315A/B XZV-3401A/B
5	V5201A/B/C/D XZV-W5201A/B/C/D
6	V7201A/V7301A/V7201B/V7301B XZV-W7201/XZV-W7301/XZV-W7201B11/XZV-W7301B11
7	V8302A/B/C/D XZV-8301A/B/C/D

5 GDS

GDS

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GDS

HOLL IAS MACS-K

1

1

2

2

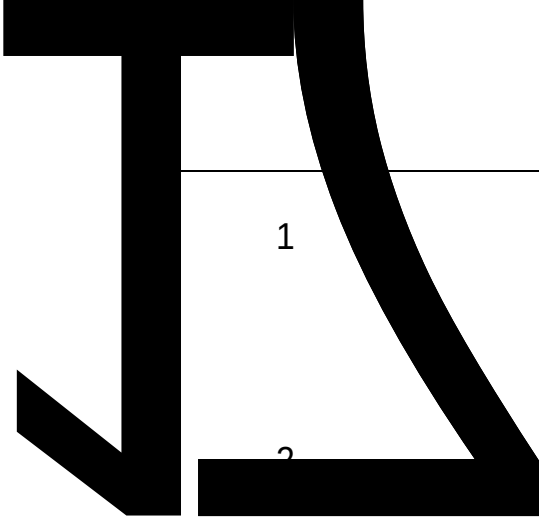
50%

	I/O					20%			
	3	CPU			CPU				
	4		1:1		DCS				
	5					1:1			
	6	I/O	20%			I/O			
	6								
	SIS			Hiaguard			DCS	GDS	
DCS		kM				GDS	SIS		GDS
	kM			SIS	DCS				IP65
1									
2									
									RF
3						IP65			
4								24V	
5						WF2			

WF1

1

2



1

2

3

1

UPS

90min

2

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h

2.8.5

3.

3.1

3.1.1

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82503

UN

ammonium hydroxide

2672

35

2

3

1

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2

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5m

4

()

GB 50057

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2

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4

GB 7231

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LC50	LD50 3700 mg/kg()
	30

3.1.4

:

methyl acrylate

32146

UN

1919

147

() -75

) 80

(m "

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LD50 277 mg/kg() 1243 mg/kg() LC50 4752mg/m³ 4
() (mg/m³) 20

15

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26

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nit

3.1.6

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Nitrogen

22005

UN

1066

172

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	18
	30

3.1.7

:

o-xylene

33535

	30

3.1.8

:

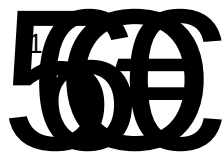
61552 UN 1888 541

() -96.7) 39.8 (=1) 1.5
() 263.4 (MPa) 5.47 =1 4.12

()
(V:V%) 12-19
615

LD50 1600-2000m ġ

	1 2 3 1 2 1 2 30
	15 15 (NaHSO4) 100m 50m 800m



2

30

3

,

1

37

2

3

(V:V%) 35mg/m³
232

(mg/m³) 20

ρ κλ α ω „ (ρ

∞

LC50 510mg/m³ LD50 2140 mg/kg ()
() 320mg/m³ 2 ()

15

15

LC50 618 mg/m³() (mg/m³) 10

(1000mg/m³)

1

2

3

İ Ø•B ñQWU•%S

30

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1 Å

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$p \perp \zeta \perp \ddot{\alpha} \quad v$

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45

4%

2%

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5 P

4

5

¡A Nórdica!

3.1.15

:

chloromethane

1591

(=1)

0.92

(=1)

1.78

() 632

%(V/V)

19.0

%(V/V)

7.0

LD50

LC50 5300mg/m

3

()

GB 50057

1

2

3

38 42

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LD50

MAC mg/m^3 0.5

MAC mg/m^3 :0.5

[illegible]

GB 7231

3.1.19

:

sodium nitrate

51055 UN 1498 2311

() 306.8 (=1) 2.26

3.1.22

:

2-propanol

32127 UN

1173

111

3.1.23

	:	acetyl choline
	2679	
	(=1) 1.11 (=1) 2.70	
	() 4	
	1211	
	LD50 910 mg/kg()	
		15
		30

3.1.24

:

	15 15 50m 300m

3.1.25

:

1-chlorobutane

1446

(=1)

0.89

(=1)

3.20

()

-12

()

240

%(V/V)

10.1

%(V/V)

1.8

≤ 1/10

	30

3.1.26

:

tetrahydrofuran

UN

2071

(=1)

0.89

(=1)

2.5

()

268

()

-108.5

()

65.4

(MPa)

5.19

()

-20

()

230

%(V/V)

12.4

%(V/V)

1.5

3.1.28

	:	formaldehyde		
	83012	CAS	50-0-0	UN 1198
	(=1) 0.82 (=1) 1.07			
	() 50	% (V/V) 73 % (V/V) 7		
	LD50 800 mg/kg() 270 mg/kg() LC50 590mg/m³			

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3.2

3.2.1

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3.2.2

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03/12/2023

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3.3.3

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3.3.4

3.2-1

3.2-1

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5			
6			

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3.3.5

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3.3.6

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3.3.7

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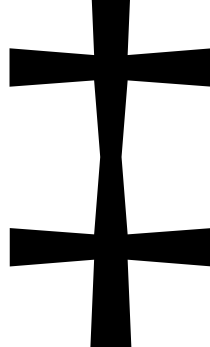
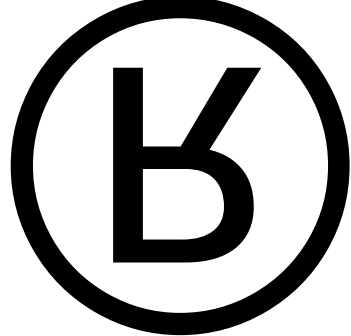
4.1-1

4.1-2

4.1-3

4.1-3

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4.1-5

d

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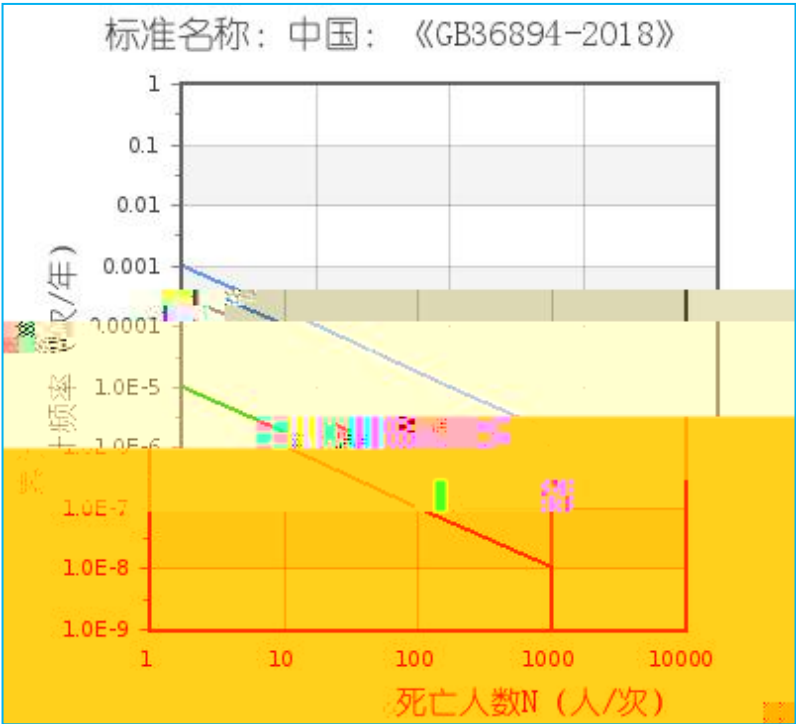
3

4.1.3

12

10

N

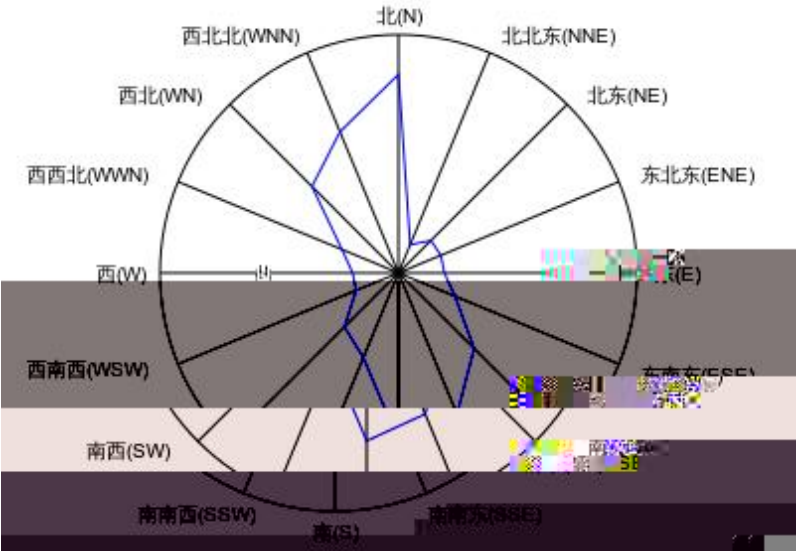


3

	()
	B
pa	101
m/s	3.8
kg/m3	1.293
K	298.13
	0.03

4

/m2 :7.0E-5



4.2.2

1

1

001

145.3,193.3

m³ 0.66

-

LEAK

m² 0.001

m 0.5

K 298

0.5

kg/m³ 1400

A -6.35

B 0.5

N 2.75

Pa 1600000

mg/m³ 1

m 0.5

kJ/(kg.K) 0.5

K 239

kJ/kg 20400

kg 50

kg

s 30

s 60

2

2

002

5 3,116.3

m³ 0.66

LEAK

m ²	0.001
----------------	-------

m 0.5

K 298

0.5

kg/m³ 1400

A -6.35

B 0.5

N 2.75

Pa 1600000

mg/m³ 1

m 0.5

$\text{kJ}/(\text{kg}.\text{K})$ 0.5

K 239

kJ/kg 20400

kg 50

kg

3

3

-

003

553.1,125.2

m³ 0.8

, , ,

<10kg/s

POOL FIRE ,

PVE

kg 20

kg 17

kg/m³ 1540

kJ/kg 15199

kJ/(kg.K) 1.1

kJ/kg :598

K 212.7

s 20

(m) 0.84

m³ 0.8

Pa 2500000

1/Pa 0.012

4

4

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004

561.3,125

m³ 0.8

, , ,

<10kg/s

POOL FIRE

kg 20

kg 17

kg/m³ 660

kJ/kg 34951.706

kJ/(kg.K) 1.74

kJ/kg :340

K 266.7

s 20

(m) 1.28

5

5

-

005

570.3,131

m³ 0.2

LEAK

m² 0.01

m 0.2

K 298

1

kg/m³ 790

A -4.1

B 1

N 1

Pa 101000

mg/m³ 25

m 0.4

kJ/(kg.K) 2.51

K 337.7

kJ/kg 1102

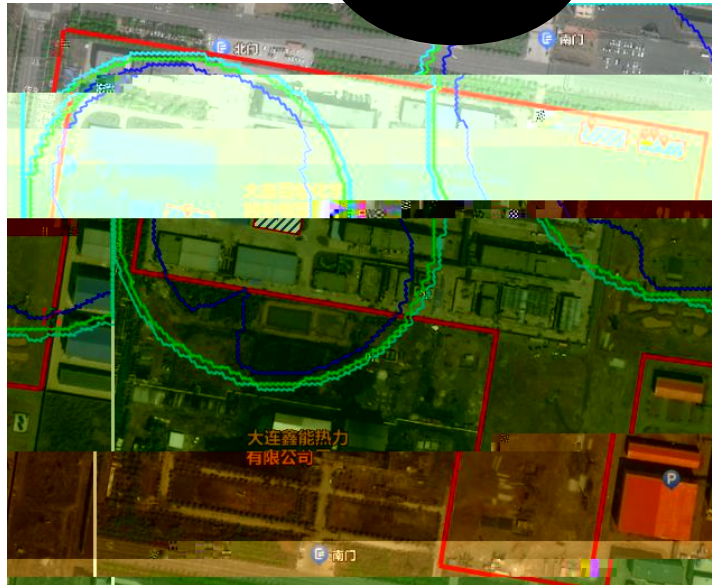
kg 10

kg

s 30

s 120

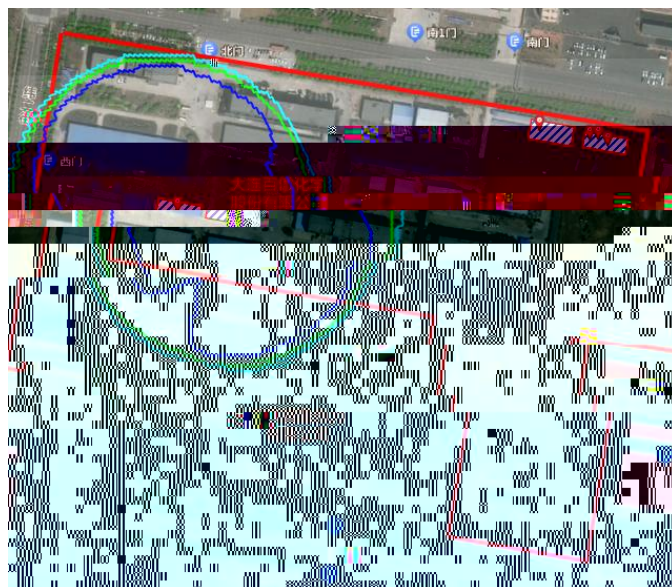
3.1



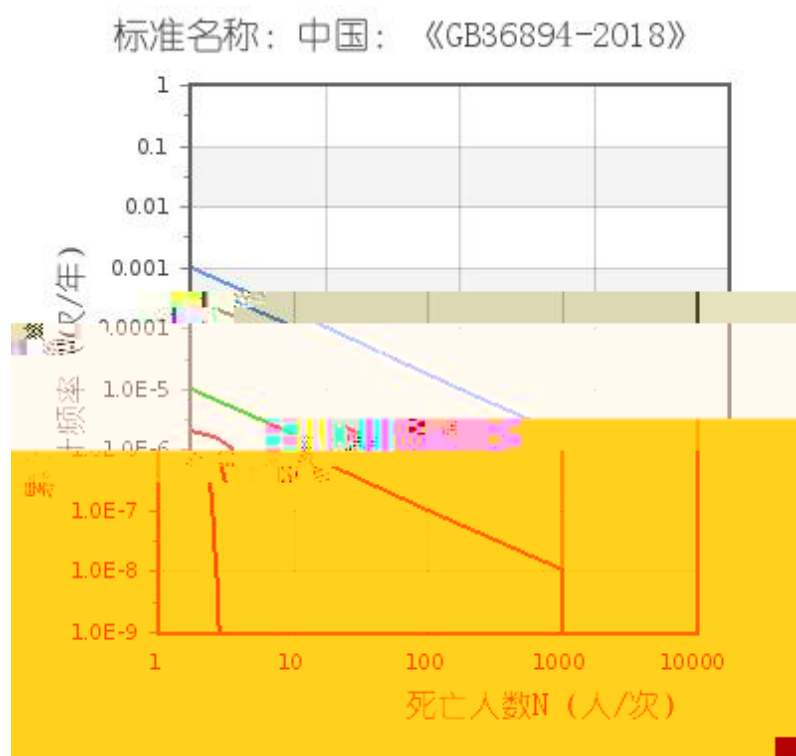
2

2

1



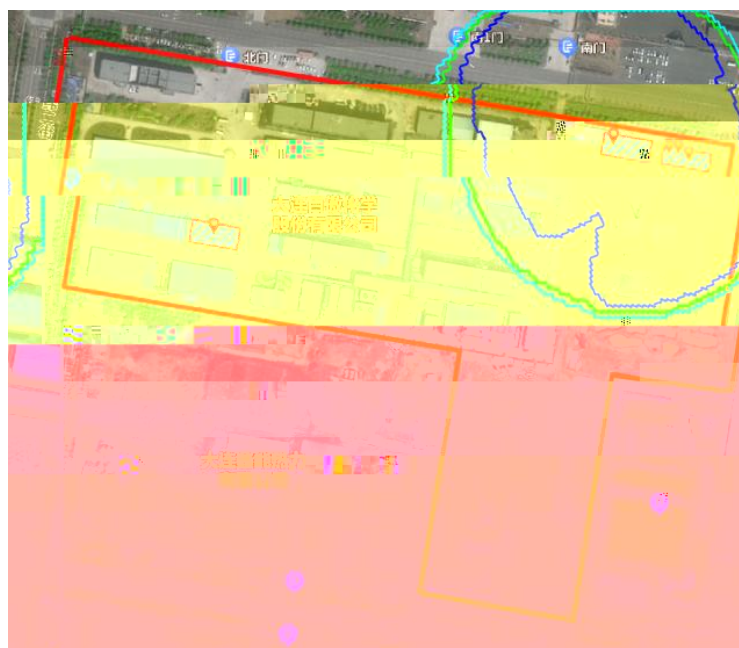
2



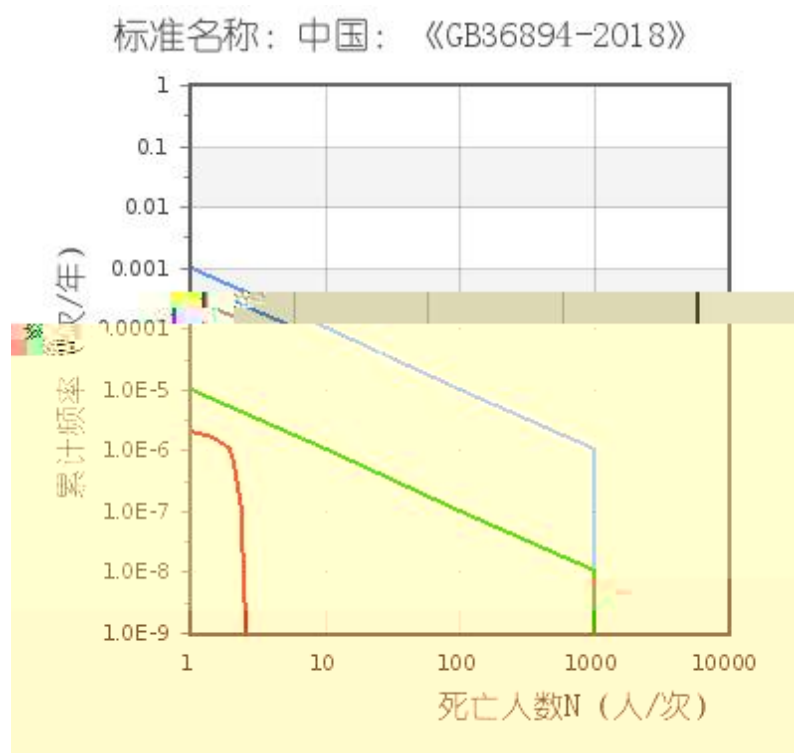
(

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(PLL):8.3531E-6

4

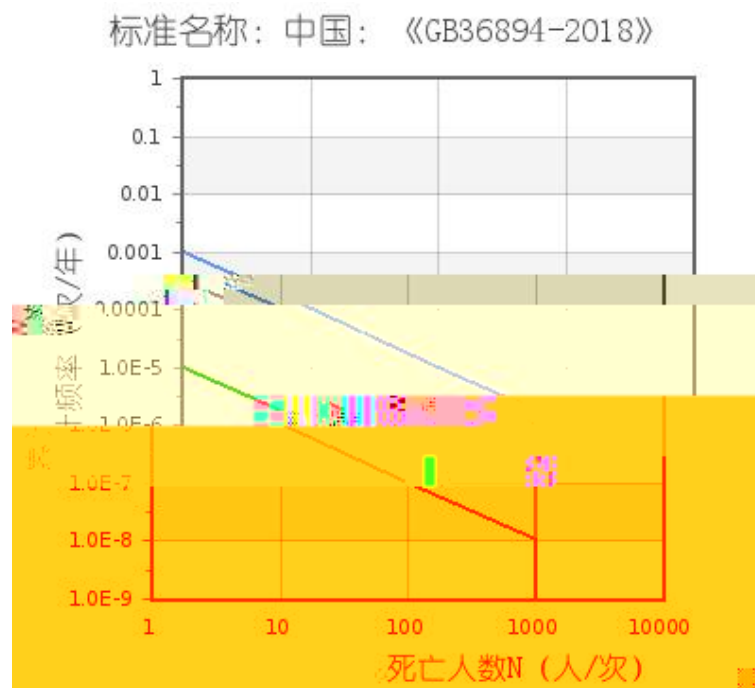
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(PLL):9.95E-8

5

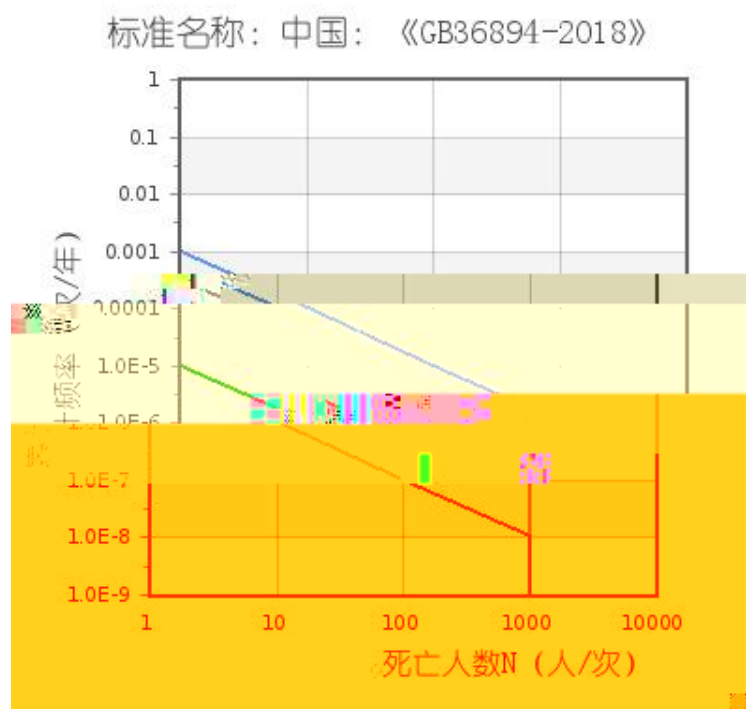
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(PLL):1.774E-7

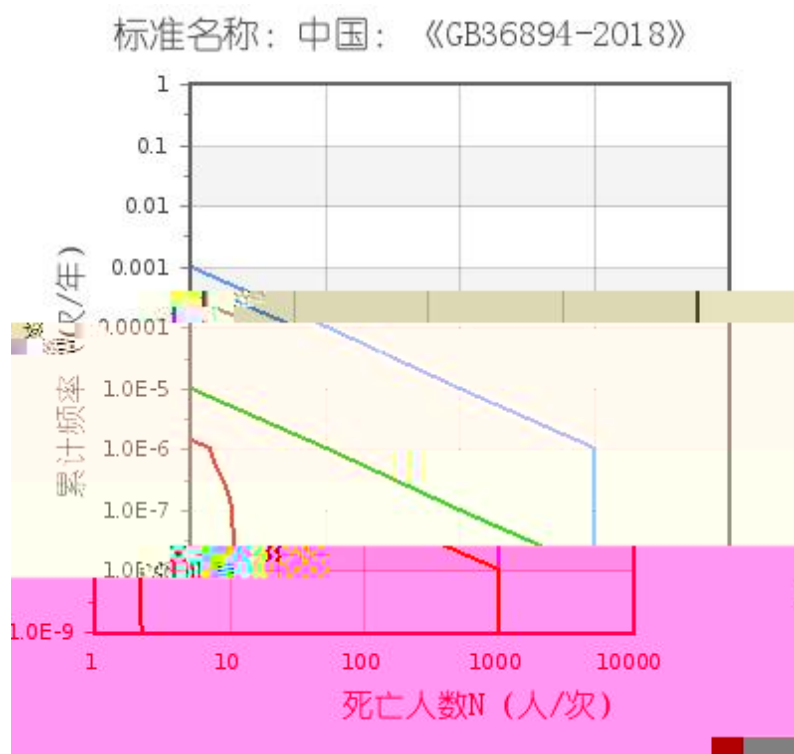
6

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1



2



4.2.4

1

1



(m)

(m)

ENE	0
NE	0
NNE	0
N	0
WNN	0
WN	0
WWN	0
W	0
WSW	0
SW	0
SSW	0
(S)	0
(SSE)	0
(SE)	1.77
(ESE)	0
(E)	0

(m)

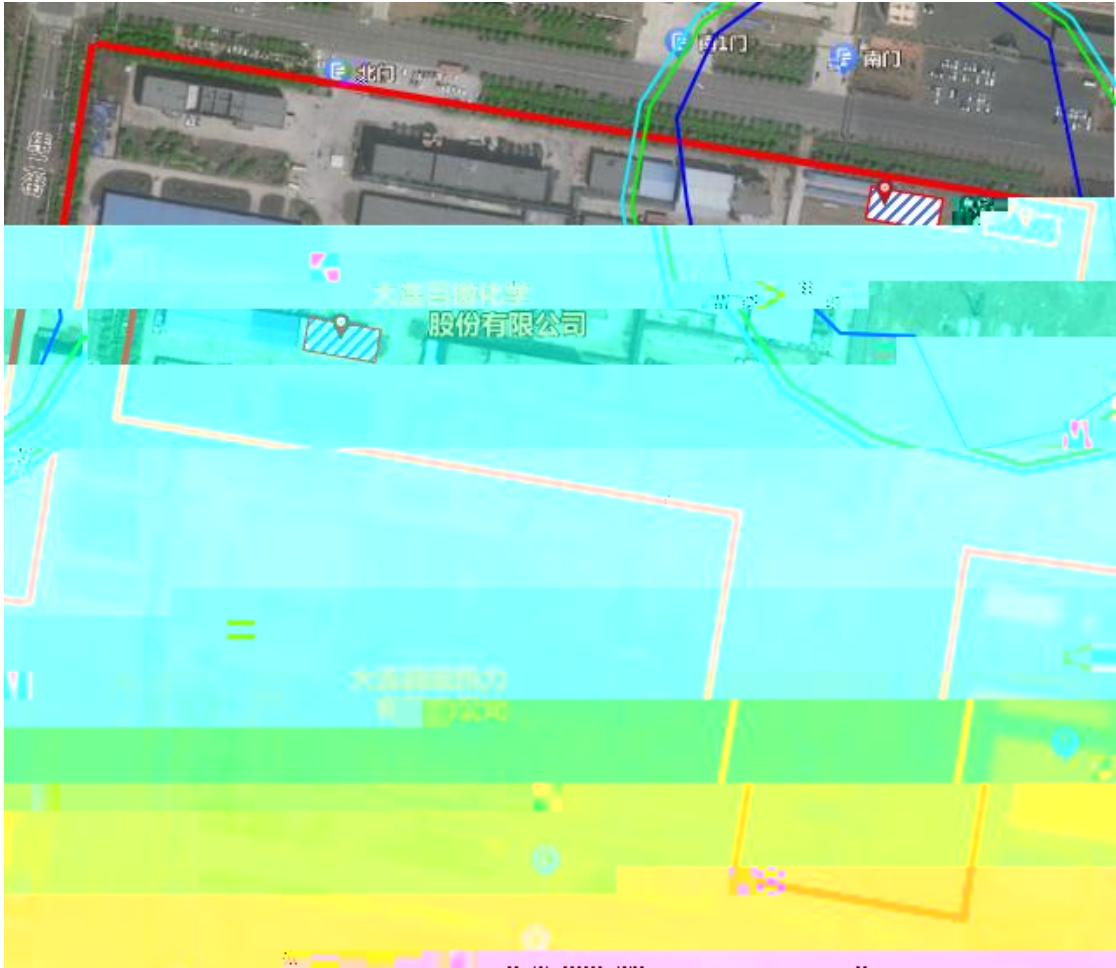
ENE	105.47
NE	103.13
NNE	125
N	125.78
WNN	131.25
WN	130.47
WWN	128.13
W	120.31
WSW	105.47
SW	103.13
SSW	100
(S)	76.02
(SSE)	132.03
(SE)	130.47
(ESE)	128.91
(E)	121.09

(m)

ENE	135.16
NE	135.16
NNE	136.72
N	137.5
WNN	139.06
WN	138.28
WWN	137.5
W	135.94
WSW	135.16
SW	135.16
SSW	135.16
(S)	133.59
(SSE)	139.06
(SE)	138.28
(ESE)	138.28
(E)	135.94

(m)

ENE	140.63
NE	140.63
NNE	141.41
N	142.19
WNN	142.97
WN	142.97
WWN	142.19
W	141.41
WSW	140.63
SW	140.63
SSW	140.63
(S)	139.84
(SSE)	142.97
(SE)	142.97
(ESE)	142.19
(E)	141.41



(m)

(m)

(m)

	ENE	105.47
	NE	105.47
	NNE	124.22
N		126.56
	WNN	131.25
	WN	130.47
	WWN	128.13
W		120.31

(m)

ENE	140.63
NE	140.63
NNE	141.41
N	142.19
WNN	142.97
WN	142.97
WWN	142.19
W	141.41
WSW	140.63
SW	140.63
SSW	140.63
(S)	139.84
(SSE)	142.97
(SE)	142.97
(ESE)	142.19
(E)	141.41



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(m)

,

(m) 4.09m

(m) 4.87m

(m) 4.87m

(m) 4.87m



;

(m) 1.77m

(m) 2.55m

(m) 3.32m

(m) 3.32m

(m) 4.09m



(m)

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(m)

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(m)

ENE	23.43
NE	26.52
NNE	72.93
N	90.72
WNN	123.44
WN	121.88
WWN	103.13
W	49.73
WSW	23.43
SW	17.24
SSW	11.83
(S)	35.03
(SSE)	125.78
(SE)	121.88
(ESE)	116.41
(E)	53.59

(m)

ENE	132.03
NE	132.03
NNE	134.38
N	135.16
WNN	137.5
WN	137.5
WWN	135.94
W	133.59
WSW	132.03
SW	132.03
SSW	132.03
(S)	129.69
(SSE)	138.28
(SE)	137.5
(ESE)	136.72
(E)	133.59

(m)

ENE	140.63
NE	140.63
NNE	142.19
N	142.19
WNN	143.75
WN	143.75
WWN	142.97
W	141.41
WSW	140.63
SW	140.63
SSW	140.63
(S)	139.84
(SSE)	144.53
(SE)	143.75
(ESE)	142.97
(E)	141.41

4.2.5

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0m



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0m



3	-		"O	U
1		2.1682m		

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0m



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6.1

GB 18218-2018

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6.2

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$$\begin{array}{ccccccc}
 s & \frac{q_1}{\varrho_1} & \frac{q_2}{\varrho_2} & \dots\dots\dots & \frac{q_n}{\varrho_n} & 1 & 1 \\
 q_1 & q_2 \dots & q_n & & & & t
 \end{array}$$

$\beta_1 \ \beta_2 \dots, \beta_n \text{ —}$

$\alpha \text{ —}$

3

β

		β
	W1.1	2
	W1.2	2
	W1.3	2
	W2	1.5
	W3	1
	W4	1
	W5.1	1.5
	W5.2	1
	W5.3	1
	W5.4	1
	W6.1	1.5
	W6.2	1
	W7.1	1.5
	W7.2	1
	W8	1
	W9.1	1
	W9.2	1
	W10	1
	W11	1

4 α

500m

6.3-3

α

6.3-3

α

	α
100	2.0
50 99	1.5
30 49	1.2
1 29	1.0
0	0.5

5

R 6.3-4

6.3-4

R

	<i>R</i>
	$R \geq 100$
	$100 > R \geq 50$
	$50 > R \geq 10$
	$R < 10$

500m

α 0.5

β 6.3-1 6.3-2

6.3-2

2

β

6.3-5

β

6.3-5

	β
	4
	4
	1
	1
	5
	1.5
	1
	1
	1
	1

1

4.1-1

α

β

2

4.1.3

7.

≥ 100

“ ” “ 1 ” “ ”

7.1

É!° LTMÚ

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9				
10				
11				
12				
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16

4

17

4.2 a

18

4.2 c

19

4.2 d

24	a b c	4.7.3		
25	a) b)	4.7.5		
26		4.7.6		
27				

28

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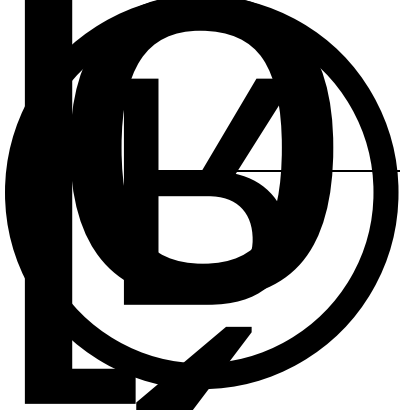
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31

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7.2-1

DCS

4.6.3

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4.7.1

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4.7.3

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4.7.4.1

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4.7.5

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4.2.5[≥]

13	NCl_3 NCl_3 NCl_3 NCl_3 60g/L	3.10	NCl_3	
14	50kg 100kg 500kg 1000kg	6.1.3	1000kg	
15		7.1.2		
16	500kg 1000kg	7.1.4	1000kg	
17		6.1.1		
18		6.1.5		
19		6.1.10		
20	4.1.5	4.1.5	2.2-1	
21	4.2.9	4.2.9	2.2-2	
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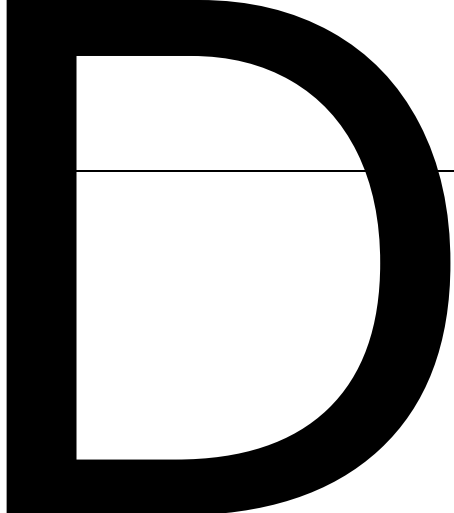
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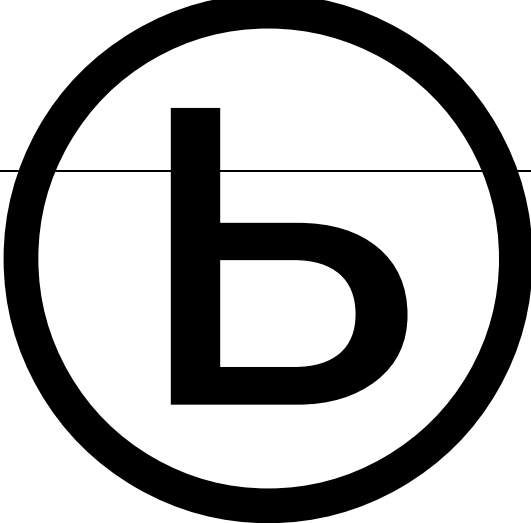
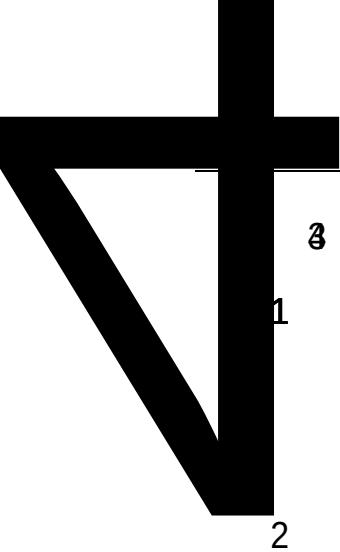
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