



FOR REFERENCE ONLY



..... 1

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..... 2

..... 3

..... 4

..... 5

..... 5

..... 5

..... 6

..... 6

..... 9

..... 11

..... 12

..... 15

..... 15

..... 16

..... 16

..... 16

..... 19

..... 21

..... 21

..... 22

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3

"

"

2020 4

2020

2020

2020

2020

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2018

610

(CMA

70%

CMA

CMA

CMA

---

1

2

3

3

4

6

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1

XRF

GPS

pH

-

-

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2

/

/

/

/

/

/

/

/

3

1

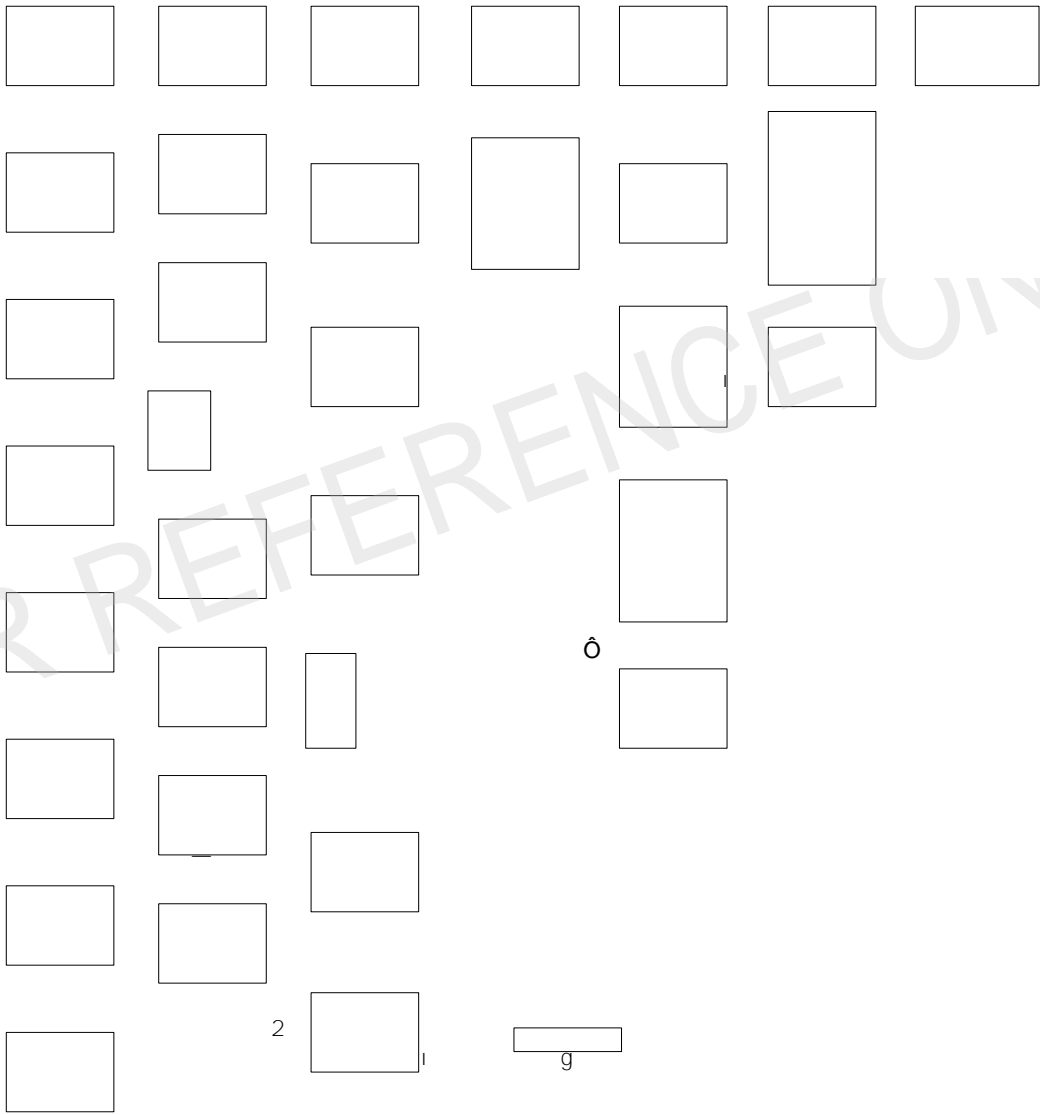
2

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3

4

1



1

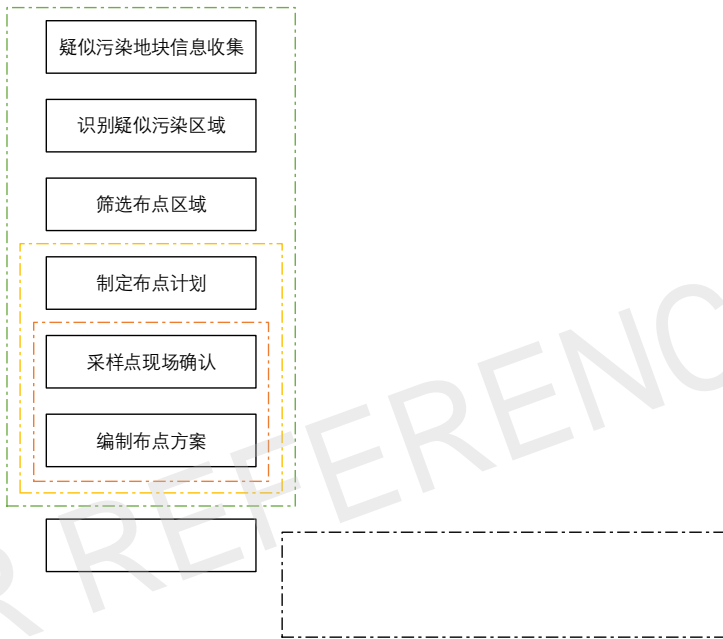
+ +

1

2 /

3

4



2

1

2

5

---

1

/

2

2m

3

4

48h

" 7.1

"  
3~5

1

1

3

<3 m

2

0~50 cm

50 cm

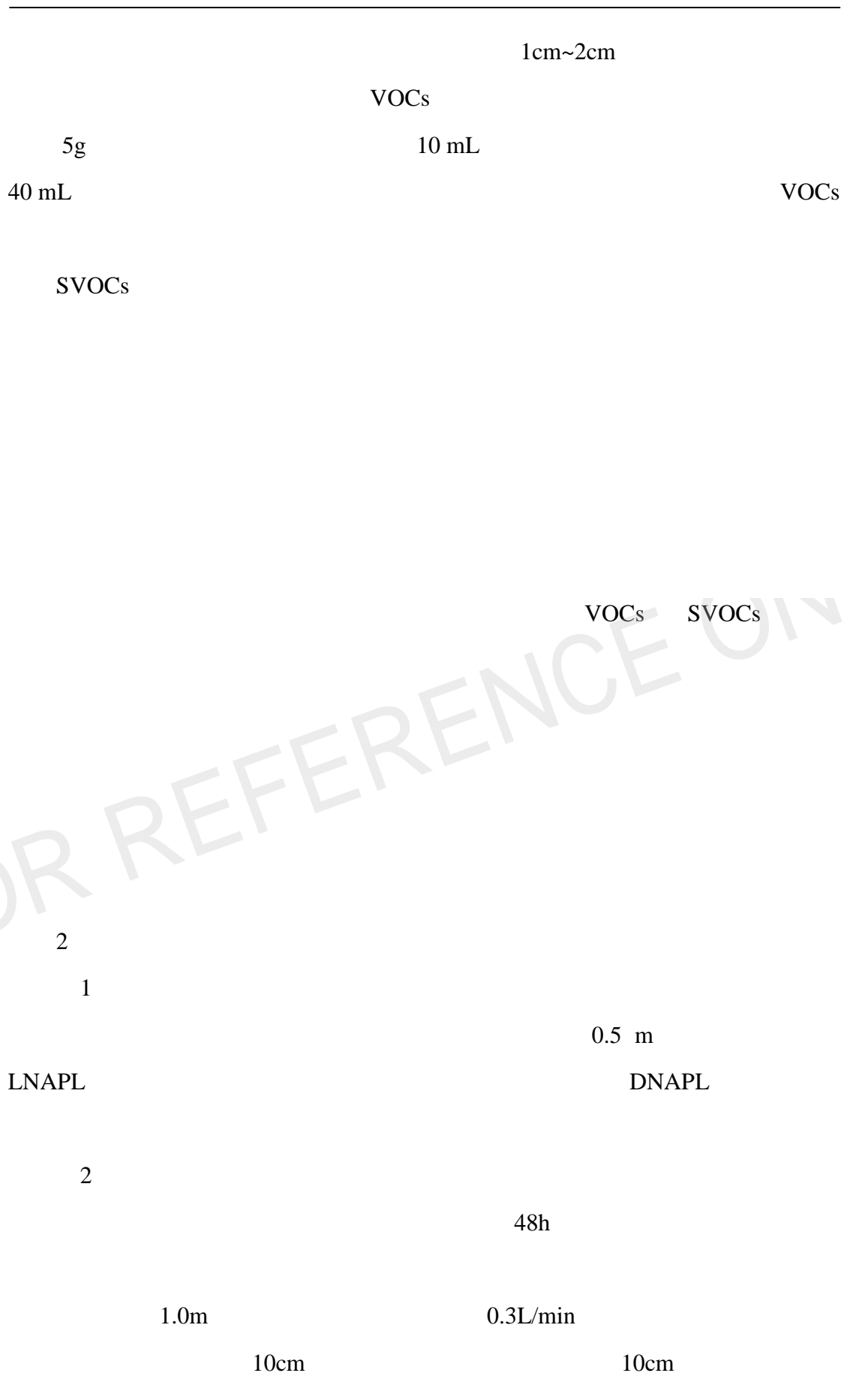
1

2

VOCs

VOCs





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3~5

pH

5

pH

T

DO

ORP

a pH

± 0.1 b

± 0.5 c

± 3% d DO

± 10%

DO 2.0 mg/L

± 0.2 mg/L e ORP

± 10 mV f

10 NTU

50 NTU

± 10%

10NTU

± 1.0 NTU

50 NTU

5 NTU

3~5

10 cm

10 cm

2 h

VOCs

2~3

VOCs

0.3 L/min

---

SVOCs

VOCs

3

1

10%

2

11~14

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GPS

HJ1019

1

2

1

4

1

1

			<b>d</b>	
( )		4	180	
		4	28	
		4	10	
		4	2	
		4	7	
		4	10	

2

20

8

2

3

2

2

				(ml)
	P G	NaOH 1-5	7d	250
	P	1-5	14d	250
	P G	NaOH pH8-9	14d	250
		HNO <sub>3</sub> ,1L HNO <sub>3</sub> 10ml DDTC HCl2ml	14d	250
	P G	HNO <sub>3</sub> ,1L HNO <sub>3</sub> 10ml	14d	250

3 4

GB36600

GB/T14848 GB5749

5 6

3

	9			
	/			2
	27 1,1- 1,2- 1,1,1- 1,1,1- 1,2- +	-1,2- 1,1,1,2- 1,1,2- 1,2- +	1,1- -1,2- 1,1,2,2- 1,4-	1,2-   1,2,3-   
	11 [k]	2- [a]	[a] [a, h]	[b] [1,2,3-cd]
	/			1 C <sub>10</sub> ~C <sub>40</sub>
	/			2 pH

4

	8			
	/			2
	22 1,1,1- 1,2- +	-1,2- 1,1,2- 1,4-	1,2- 1,1- 1,2-	-1,2-   
	3 [a]	[b]		/
	/			1 C <sub>10</sub> ~C <sub>40</sub>
	/			9 pH

		Na <sup>+</sup> Cl <sup>-</sup>
--	--	------------------------------------

5

1		12 - HJ 803-2016	
2		HJ 491-2019	
3		HJ491-2019	
4		HJ 680-2013 /	
6		- HJ1082-2019	
7		HJ 745-2015	
		GB/T 22104-2008	pH
8	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-	HJ 605-2011	

	1,4-		
	+		
	-		
9	2- (a) (a) (b) (k) (a,h) (1,2,3-cd)	HJ 834-2017	-
10	C <sub>10</sub> ~C <sub>40</sub>	C <sub>10</sub> -C <sub>40</sub> HJ1021-2019	

6

1		65	HJ 700-2014
2		32	HJ 776-2015
3			HJ 694-2014
4			GB/T 7467-1987
5			HJ 484-2009
6			GB/T 7484-1987
7	1,1- 1,2- -1,2- -1,2- 1,2- 1,1,1- 1,1,2- 1,2- 1,4- +	/ -	HJ 639-2012
8			/ - HJ810-2016
9			/ -



		5750.8-2006	GB/T
10	C <sub>10</sub> ~C <sub>40</sub>		C <sub>10</sub> -C <sub>40</sub> HJ 894-2017
11	[a] [b]	478-2009	HJ
12			GB/T16489-1996
13		Br <sup>-</sup> NO <sub>3</sub> <sup>-</sup> PO <sub>4</sub> <sup>3-</sup>	F <sup>-</sup> Cl <sup>-</sup> NO <sub>2</sub> <sup>-</sup> SO <sub>3</sub> <sup>2-</sup> SO <sub>4</sub> <sup>2-</sup> HJ84-2016
14	Na <sup>+</sup>	NH <sub>4</sub> <sup>+</sup> K <sup>+</sup> Ca <sup>2+</sup> Mg <sup>2+</sup>	Li <sup>+</sup> Na <sup>+</sup> HJ 812-2016
15			HJ535-2009
16			4- HJ503-2009

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5 ( )

r 0.999

20

10%

20%

10%

10

1

RSD

RSD

$$RSD(\%) = \frac{|A - B|}{A + B} \times 100$$

RSD

A B

7 8 9 10

7

	(mg/kg)	RSD		(%)	RE(%)
		(%)	(%)		
	<<0.1	35	40	75~110	40
	0.1~0.4	30	35	85~110	35
	>0.4	25	30	90~105	30
	<<0.1	35	40	75~110	40
	0.1~0.4	30	35	85~110	35
	>0.4	25	30	90~105	30
	<10	20	30	85~105.	30
	10~20	15	20	90~105	20
	>20	10	15	90~105	15
	<20	20	25	85~105	25
	20~30	15	20	90~105	20
	>30	10	15	90~105	15
	<20	25	30	80~110	30
	20~40	20	25	85~110	25
	>40	15	20	90~105	20
	<50	20	25	85~110	25
	50~90.	15	20	85~110	20
	>90	10	15	90~105	15
	<50	20	25	85~110	25
	50~90	15	20	85~110	20
	>90	10	15	90~105	15
	<20	20	25	80~110	25
	20~40	15	20	85~110	20
	>40	10	15	90~105	15

8

	(mg/L)	RSD		(%)	RE(%)
		(%)	RSD(%)		
	<0.005	15	20	85~115	15
	0.005~0.1	10	15	90~110	10
	>0.1	8	10	95~115	10
	<0.001.	30	40	85~115	20
	0.001~<0.005	20	25	90~110	15
	>0.005	15	20	90~110	15

	(mg/L)	RSD		(%)	RE(%)
		(%)	RSD(%)		
	<0.05	15 10	25 15	85~115 90~110	20 15
	<<0.1 0.1~1.0 >1.0	15 10 8	20 15 10	85~115 90~110 95~105	15 10 10
	<0.05 0.05~1.0 >1.0	15 10 8	20 15 10	85~115 90~110 95~105	15 10 10
	<0.01 0.01~1.0 >1.0	15 10 5	20 15 10	90~110 90~110 90~105	15 10 10
	<0.05 0.05~1.0 >1.0	20 15 10	30 20 15	85~120 90~110 95~105	15 10 10
	<1.0	10 8	15 10	90~110 95~105	15 10
	<0.05 0.05~0.5 >0.5	20 15 10	25 20 15	85~115 90~110 90~110	20 15 15

9

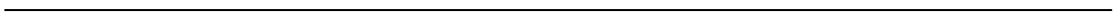
		RSD(%)	(%)	
	>10MDL	30 20	80~120 90~110	AAS ICP-AES ICP-MS.
	>10MDL	50 25	70~130	GC GC--MSD
	>10MDL	50 30	60~140	GC GC-MSD
	>10MDL	50 30	60~140	GC-MSD
:MDL-	;AAS	;ICP-AES		;ICP-MS
	;GC-	;GC-MSD-		

10

		RSD(%)	(%)	
	>10MDL	30 20	70~130	AAS ICP-AES ICP-MS
		50	70~130	HS/PT-GC.

	>10MDL	30		HS/PT-GC-MSD
	>10MDL	50 25	60~130	GC GC-MSD
	>10MDL	50 25	60~130	GC-MSD
:MDL-	;AAS	;ICP-AES--	.	;ICP-MS
		;HS/PT-GC- /	-	;HS/PT-GC-MSD- /
-	;GC	;GC-MSD-		

A



RE

,

RE

7 8

x

100%

2

10

10

1

0.5 1.0

2 3

7 8

9

---

$\bar{x}$

s                      95%                       $\bar{x}$                        $\bar{x} \pm 2s$

$\bar{x} \pm 3s$

1

2

3

4

95%

5

100%

6

95%

7

8

9

10

1

2

3

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1

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(CMA):	
(CMA) :	
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	:
	:
	:
	:

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3

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		/		

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:								
:			:			(C):		
:			PID :			PID :		
:		(m):		: mm				
:		:		(EN);				
(m):		(m):		(m):		(m):		
PID :			XRF :					
:								
:				:				
(m)	(m)			(m)		( /VOCs/SVO Cs)	PID (ppm)	XRF

GB50021-2001

VOCs  
PID

PID

XRF

1.			
2.			
3.			
( )			
(m)			
	<p style="text-align: center;">                     - 9                      A3 -   2                      - 14                      - 16                      - 2                      - 4  <hr style="width: 20%; margin: 0 auto;"/> </p>	<p style="text-align: center;">                     - 8                      - 23                      - 13                      -                 </p>	
4.			
PID		PID	
PID			
XRF		XRF	
5.			
:	:	:	

VOCs  
 PID  
 XRF

PID

13

(m)

		(mm)			
(m)		(m)			
(m)					
(m)					
( )	3m	2m	1m	0.5m	0.3m
	m				
( )					
(m)		(m)			

1.									
						48			
2									
/						m			
m						m			
m						L			
3									
	m	L		pH	µs/cm	mg/L	mV	NTU	
L						m			
<p style="text-align: center;">10 cm</p> <p style="text-align: center;">3~5</p> <p>5~15min      pH      PH      ± 0.1      ± 0.5      ± 10%      10NTU</p>									