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EHS

EHS

EHS

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挥发性有机化合物

VOC

VOC

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IPCC

BREF

4.1.3



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EHS

颗粒物

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HVAC

HEPA

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燃烧源排放

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VOC



EHS

50

MWth

臭气

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EHS

工业废水

PH

BOD

/

COD

TSS

API

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COD

加工废水处理

BOD

i

ii

/



iii

iv

v

TDS vi

EHS

其他废水与用水

EHS

EHS

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EHS

EHS



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生物勘测

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生物安全

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PIC CBD

CBD

¹ IFC

² CBD 2002

³ Akwe Kon BIO

CBD 2004 BIO 2006

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APHIS

http://www.aphis.usda.gov/brs/international_biosafety.html
<http://www.aphis.usda.gov/brs/biosafety.html>

<http://www.aphis.usda.gov/biotechnology/>



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9 10

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WHO
NIH

CDC

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UNEP

6 Mackie

2006

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IBC

<http://portal.unesco.org>

<http://www.bioethics.gov/>

<http://www.bio.org/>

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<http://awic.nal.usda.gov>

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86/609/EC

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1996

<http://www.aaalac.org/>



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	[HAZID]	[HAZOP]
[QRA]		
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EHS		
		VOC
EHS		
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- cGMP
- HVAC ¹ HEPA
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- LEV
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- LEV
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-
- VOC
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- LEV
- HEPA

火灾与爆炸

EHS

EHS

¹ HVAC

EHS

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1.3

EHS

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HAZID

QRA

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HAZOP



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EHS

EHS

2.1

1 2

50MWth

EHS

EHS
EHS

EHS
95%

表一：药品与生物技术制造生产的空气排放水平

	mg/Nm ³	0.15
	mg/Nm ³	20
	mg/Nm ³	50
	/	900 1 800 ³
A ¹	mg/Nm ³	20 ⁴
B ²	mg/Nm ³	80 ⁵
	mg/Nm ³	1
VOC	mg/Nm ³	20 150 ⁶ 50 ⁷



HBr	mg/Sm ³	3
	mg/Sm ³	30
	mg/Sm ³	30
	mg/Sm ³	0.05
	mg/Sm ³	0.5
	mg/Sm ³	0.05

1. A

1999/13/EC A

2. B	A		
3.		900	HAP 1 800
4. A		100 /	
5. B		5 / 2 /	
6.	1999/13/EC	50 /	150
			5%
		15%	5%
7.		15%	15%
		15	

表二：药品与生物技术制造生产的污水排放水平

pH	S.U.	6 – 9
BOD ₅	/	30
COD	/	150
TSS	/	10
	/	10
AOX	/	1
	/	0.5
	/	0.1
	/	0.1
	/	0.1
	/	0.01
	/	0.05
	/	30
	/	10
	/	2
1	/	0.2
	/	10.2
2	/	0.5
	/	0.02
	/	0.06
	/	0.013



		/	0.06
1,2 –		/	0.1
	3	/	102
		/	37.5
/		/	4.1
		/	0.02
		/	0.02
		/	0.5
		/	1.6
		/	2.6
		/	40.6
		/	0.3
		/	2.6
		/	0.02
		/	0.01
			2
		T.U. 4	8
			16
			8

1

MIBK

2

3

4 TU = 100/

%

CEN ISO OECD

EHS

2.2

ACGIH

TCV®



BEIs® ¹

NIOSH

²

OSHA

PELs ³

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⁶

EHS

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¹ <http://www.acgih.org/TLV/> <http://www.acgih.org/store/>

² <http://www.cdc.gov/niosh/npg/>

³ http://www.osha.gov/pls/oshaweb/owadisp.show_document_p_table=STANDARDS&p_id=9992

⁴ http://europe.osha.eu.int/good_practice/risks/ds/oel/

⁵ <http://www.bls.gov/iif/> <http://www.hse.gov.uk/statistics/index.htm/>

⁶

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cGMP

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cGMP

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HVAC



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2003/94/EC



供水与水处理

WFI

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HVAC（供热、通风、空调）系统

HVAC

cGMP

HVAC

废水处理

WWTU