B-2020-142924161-01

2020

2021 7 30

			1
		email	13819912043 962967061@qq.com

■ □

/ /

/ email /

	2740
/	A-2020-142924161-01/2021 7 8
/	A-2020-142924161-02/2021 7 30

	34597 tCO_2e	-
	34597 tCO_2e	-
	-	-

1.

2020

2.

2.1

2020

159.76 tCO_2e

0tCO_2e 4732.62 tCO_2e CH_4 0tCO_2e CO_2

0tCO_2e 11112.42 tCO_2e

18592.06 tCO_2e 34597tCO_2e

2020

		t	tCO_2e	tCO_2e	
		159.76	159.76	159.76	-
		-	-	-	-
CH_4		225.36	4732.62	4732.62	-
CH_4	CH_4	-	-	-	-
	CH_4	-	-	-	-
	CH_4	-	-	-	-
CO_2		-	-	-	-
		11112.42	11112.42	11112.42	-
		18592.06	18592.06	18592.06	-
tCO_2e	CO_2		4892	4892	-
	CO_2		34597	34597	-

2.2

2740

3.

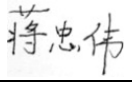
2020 2019 12.22% 2019

21.56%

4.

2020

					2021.7.30

					2021.7.30
					2021.7.30

.....6
1.1 6
1.2 6
1.3 7
.....9
2.1 9
2.2 9
2.3 10
2.4 11
.....12
3.1 12
3.1.1 12
3.1.2 14
3.1.3 18
3.1.4 19
3.2 19
3.2.1 19
3.2.2 20
3.3 21
3.3.1 **CO_2** 21
3.3.2 **CO_2** 22
3.3.3 **CH_4** 22
3.3.4 CH_4 22
3.3.5 CO_2 24
3.3.6 **CO_2** 24
3.4 25
3.4.1 25
3.4.2 33

3.4.3 35

3.4.4 39

3.5 39

3.6 39

3.7 39

.....40

4.1 40

4.2 40

4.2.1 40

4.2.2 41

4.3 41

4.4 41

.....42

1 42

2 43

3 44

1.1

17

2014 63

2016 57

(“ ”)

“ ” **2020**

-

-

-

1.2

- 2020

1

1 CO_2

2 CO_2

3 CH_4

4 CH_4

5 CO_2

6

- 2020

1.3

1

2

3

4

-

“ ”

-

- 17

- “ ” [2016]61

- MRV - /

-

- GB/T2589-2020

- GB17167-2006

2.1

2-1

	18721914620	1 2 3 4 5	
	18676625841	1 2 3	
	15057120365		

2.2

2021 7 15 2020

“ ” 2021 7 16

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7

2.3

2021 7 20

2-2

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7 20				- - - -
7 20				- -
7 20				- - - -

2.4

2021

7 20 0

2021 7 30

3.1

3.1.1

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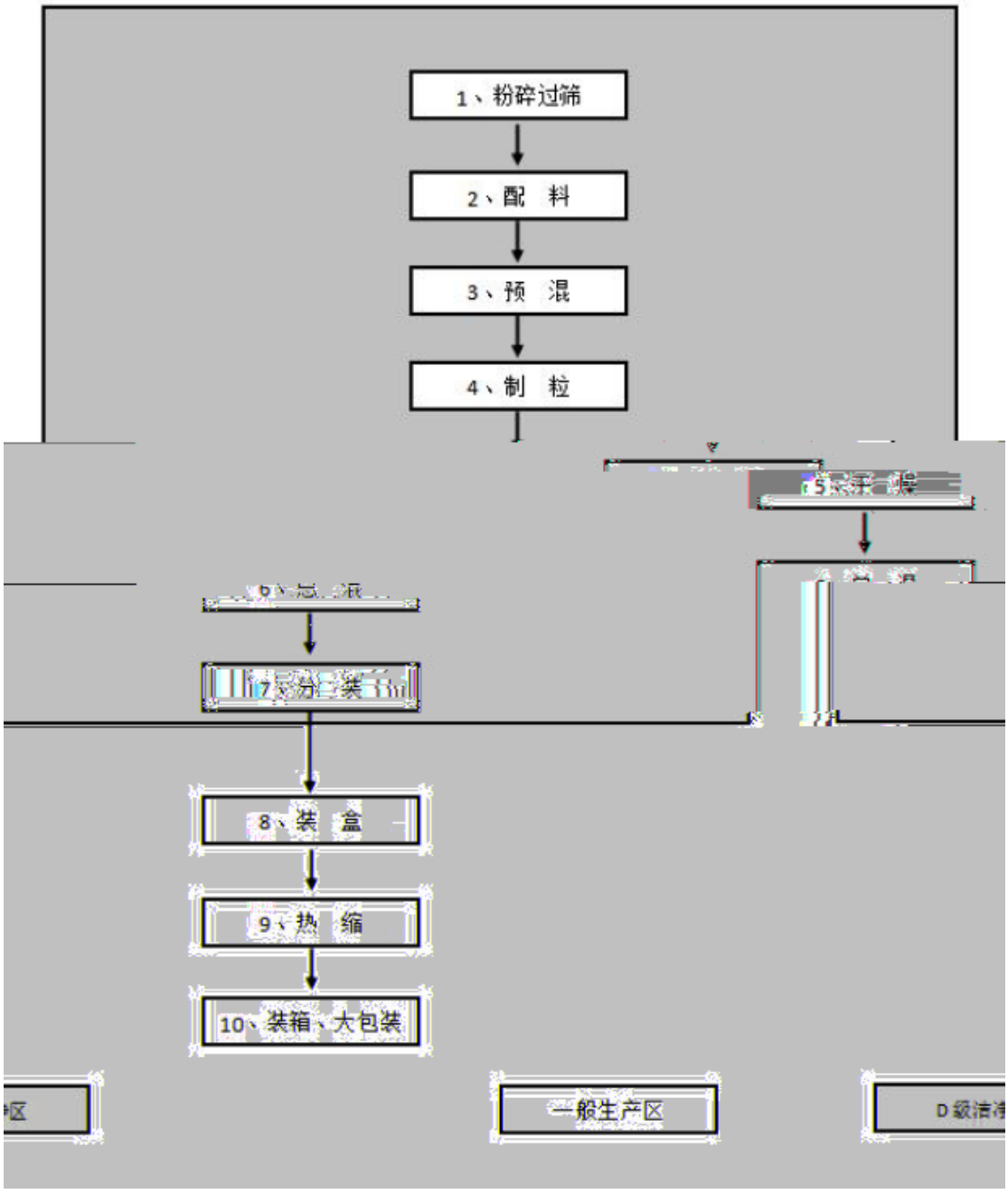
- 2740
-
-
- 1
- 1993 01 09
-
-
- 0579-88271217
-
-

3.1

3.2

3.1.2

2.



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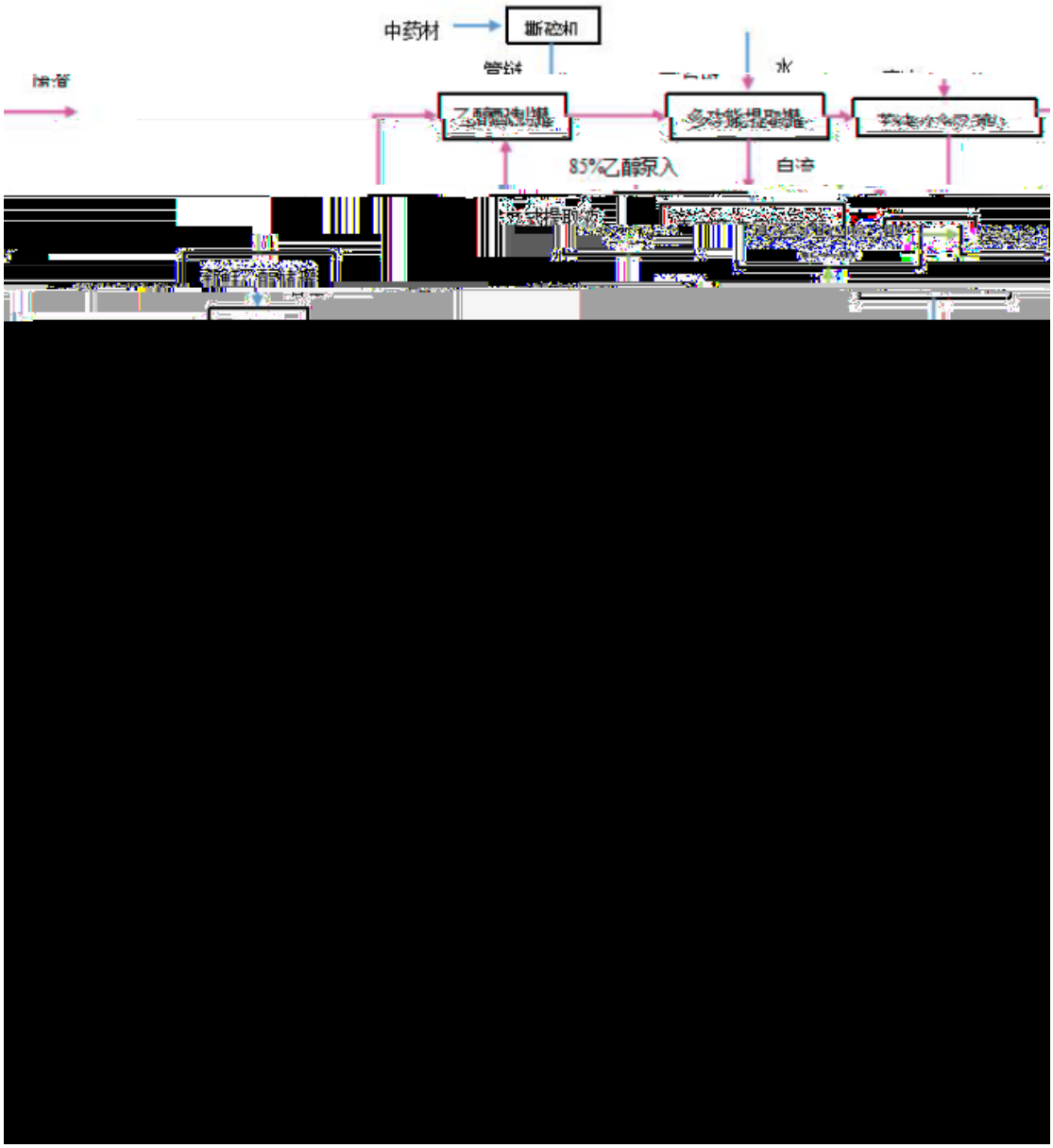


3.3

2

3-1

		/		
1		HLS400	2	48kW/
2	—		2	48.5kW/

3		FG300	1	37kW
4		KPU-40EPH	1	105kW
5		DSZG-1300BQ	1	67
6		SZA620	1	70
7		ASMR620/38	1	46.55
8		SZA600/43	1	51
9		CG/B75-60M-B	1	75KW
10		LW450*1800-N	2	37KW/
11		SSR150HB	3	30KW/
12		TH-90L	1	9KW
13		KFR-26GW	48	2kW/
14		KFR-356GW	78	2.5kW/
15		KFR-50LW	21	3.96W/
16		TC-50	3	40KW
17		ZXTZ40	1	0.1KW
18		CSA2H3000D	1	67KW
19		CYJ900	1	50KW
20		SQW-100DF	1	30KW
21		TQ6	10	7.5kw/
22		JB-16-D	2	5.5kw/
23		BVD6-38	1	65KW
24		LPG-5	1	162.5KW
25		TQ6/6m³	16	7.5kw/
26		2000L/h	4	
27		1000L/h	2	11.9kw/
28		600	2	
29		800	4	
30		BVD690	1	82KW
31		200I×280-32	7	37KW
32		CM132BV	1	132KW
33		SM200BV	1	200KW
34		KQW200/370	1	55KW
35		KQW200/345	2	45KW
36		CM110BV	1	110KW
37		IX125-380	2	37KW
38		KQW150/400-45/4	3	45KW
39		KQW250/315-75/4	5	75KW
40		KQW150/400-45/4T	2	45KW
41		KQW200-370-55/4	6	55KW
42		AA2-75W	1	75KW
43		RTHDD3D2E2	3	234.7KW

44		30HXC	1	252KW
45		TCA201CH	12	20.5KW
46		RTHDD3G2G1	1	217.7KW
47		LSBLX350SVE	2	194KW
48		LSBLX275SVE	2	160KW
49		CC510MH2JH2	1	288.2KW
50		SG10-1250/10-0.4	1	
51		SG10-1600/10-0.5	1	
52		SCB10-1600	1	
53		SCB10-630kva	1	
54		SCB10-1000/10	2	
55			2	
56		CM110PV	1	110KW
57		LSQWRF130/C	6	231KW

3

3-2

				/			
1		XS2	/	1-600g			
2		DY200	/	1.5			
		EJA430A				/	

3-3

60s/120s/150s (kg)	472580.83
19.2mg 4.8mg(kg)	86049.55
(kg)	67790.31

3.1.4

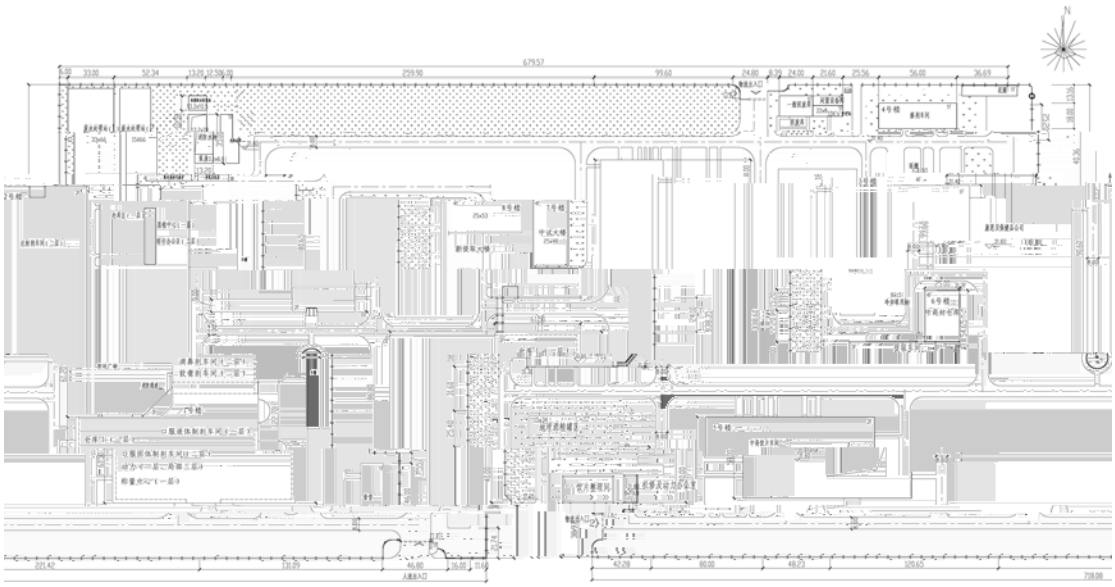
2020

2020 3112344 63225.8 19917.2

2019

3.2

3.2.1



3.4

3.2.2

3-4

	-	-	-	1
CH_4				2
CH_4	-	-	-	3
CO_2	-	-	-	

CO_2				

1

2 Fe/C

EGSB MBBR

3 CH_4 CO_2

3.3

GHG $CO2-$ $CO2-$ $\left(CH4- - CH4- \right)$ $CH4-$

$CO2$ $CO2-$ $CO2-$ 1

E_{GHG} CO_2 tCO_2e

E_{CO2-} CO_2

E_{CO2-} CO_2

E_{CH4-} CH_4

R_{CH4-} CH_4

GWP_{CH4} CH_4 CO_2 (GWP 21

R_{CO2-} CO_2

E_{CO2-} CO_2

E_{CO2-} CO_2

3.3.1 CO_2

$CO2-$ $\sum_i$ i i i $\frac{44}{12}$ 2

E_{CO2-} CO_2 tCO_2

i

AD_i i t Nm^3

CC_i i tC/t tC/ Nm^3

OF_i i %

3.3.2 CO_2

$_{CO2-}$ $\sum_i$ $_i$ $_i$ $_i$ 3

$_{CO2-}$ CO_2 CO_2

i

$_i$ i

$_i$ i CO_2 CO_2/ i;

$_i$ i

3.3.3

$_{CH4-}$ CH_4 CH_4

$_{CH4-}$ CH_4 CH_4

$_{CH4-}$ CH_4 CH_4

$_{CH4-}$ η $_{CH4}$ 6

η %

CH_4 Nm^3

$_{CH4}$ CH_4

7.17 CH_4 CH_4

$_{CH4-}$ $_{CH4}$ 7

CH_4 Nm^3

$_{CH4}$ CH_4

7.17 CH_4 CH_4

$_{CH4}$ CH_4

$_{CH4-}$ $\bar{\eta}$ $\sum_{h=1}^{H} \frac{FR_h \ V\%_h}{22\ 4}$ -3 8

$\bar{\eta}$ CH_4 %

H

h

$_{h}$ Nm^3/h

0℃ 101.325KPa

$V\%_h$ CH_4 %

22.4 $Nm^3/kmol$

16 CH_4

3.3.5 CO_2

co2– co2– co2– 9

co2– CO_2 CO_2

CO_2 Nm^3

co2– CO_2 CO_2 0~1

CO_2 Nm^3

co2– CO_2 CO_2

0~1

19.77 CO_2 CO_2/ Nm^3

CO_2

3.3.6 CO_2

co2– (10)

co2– (11)

E_{CO2-} CO_2 tCO_2

E_{CO2-} CO_2 tCO_2

AD MWh

AD GJ

EF CO_2 tCO_2/ MWh

EF CO_2 tCO_2/ GJ

3.4

/

3-5 **/**

	-	-
CH_4	COD	Bo MCF
CH_4	-	-
CO_2	-	-
CO_2		

3.4.1

3.4.1.1

3-6

	/	
	7.86	7.86
	t	

	28.98

3-9 **t**

	1	0

	20673 m^3

3-11 m^3

1	1684
2	1462
3	1731
4	1805
5	1815
6	1864
7	1883
8	1709
9	1501
10	1480
11	1886
12	1853
m^3	**20673**

3.4.1.4

3.4.1.5

3-12

	m^3	**COD_{in} (kgCOD/m^3**	**COD_{out} (kgCOD/m^3**	**(kgCOD)**
	/	/	/	/

	135908	9.45	1.16	0
	COD			
	COD			

3-14

	15795.910	15795.910
	MWh	
	DTZY6 0.5S BDK1—GK1	
	100%	
	1 = - 16323.2000 MWh 643.4400 MWh 15679.7600 MWh 15880.9600 MWh 1.27% 2 527.2900 MWh = - 15795.910 MWh 3 15795.910 MWh	

3-15

	A	B	C=A-B
1	617360	10673	606687

2	782400	15953	766447
3	1247640	18123	1229517
4	1355440	21258	1334182
5	1928000	60000	1868000
6	1998520	80987	1917533
7	1802720	82173	1720547
8	1349520	54535	1294985
9	1213000	68385	1144615
10	1146120	46999	1099121
11	1569360	41866	1527494
12	1313120	26339	1286781
kwh	16323200	527291	15795909
MWh	16323.2000	527.2900	15795.9100

3.4.1.9

0.7MPa, 200℃

EasyQuery V2.6

2843.86kJ/kg

3-16

℃	MPa	kJ/kg
200	0.7	2843.86

3-17

	VX2404R 0.5
	100%
	1 62449 62445 0.0057% 2 1213 = - 61236 3 0.7MPa, 200 EasyQuery V2.6 2843.86kJ/kg $AD = Ma_{st} \times (En_{st} - 83.74) \times 10^{-3}$ 169018.71GJ
	169018.71GJ

3-18

	A	B	C	D=A-C
1	2242	2216	69	2173
2	2389	2415	38	2351
3	6177	6173	90	6087
4	7544	7544	48	7496
5	8041	8041	70	7971
6	6480	6480	66	6414
7	5955	5681	141	5814
8	1200	1521	103	1097

9	2211	2122	196	2015
10	4200	5114	197	4003
11	8400	7305	112	8288
12	7610	7833.38	83	7527
t	62449	62445	1213	61236
℃	200	/		
MPa	0.7	/		
kJ/kg	2843.86	/		
GJ	169018.71	/		

3.4.2

3.4.2.1

		GJ/t	tC/GJ	%
		44.80	0.0189	98
		GJ/t	tC/GJ	%
		44.80	0.0189	98
	2020			

3.4.2.2

		GJ/t	tC/GJ	%
		43.33	0.0202	98

		GJ/t	tC/GJ	%
		43.33	0.0202	98
	2020			

3.4.2.3

		GJ/t	tC/GJ	%
		389.31	0.0153	99
		GJ/t	tC/GJ	%
		389.31	0.0153	99
	2020			

3.4.2.4 Bo MCF

	Bo MCF		
		Bo kgCH4/COD	MCF
		0.25	0.8
		Bo kgCH4/COD	MCF
		0.25	0.8
	2020		Bo MCF

3.4.2.5

	tCO_2/MWh	tCO_2/MWh
	0.7035	0.7035
	2012	
	2012	

3.4.2.6

	tCO_2/ GJ	tCO_2/ GJ
	0.11	0.11

3.4.3

3.4.3.1

	t Nm^3	GJ/t GJ/ Nm^3	tC/GJ	%		tCO_2
	A	B	C	D	E	F=A*B*C*D*E
	-	-	-	-	-	156.57
	7.86	44.8	0.0189	98	44/12	23.91
	28.98	43.33	0.0202	98	44/12	91.15
	2.0673	389.31	0.0153	99	44/12	44.70

3.4.3.2

3.4.3.3 CH_4

	TOW		CODin	CODout	COD	BO	MCF		CH4		
	KgCOD	)	(/	(/	COD	$KgCH_4$/ KgCOD	/	$KgCH_4$)	$KgCH_4$	GWP	tCO_2
	1126813.23	135908	9.45	1.16	0	0.25	0.8	0	225362.65	21	4732.62

3.4.3.4 CH_4

CH_4

3.4.3.5 CO_2

CO_2

3.4.3.6 CO_2

3-19 **CO_2**

	(MWh GJ)	(tCO_2/MWh tCO_2/GJ)	tCO_2	tCO_2
	A	B	C=A*B	
	15795.910	0.7035	11112.42	29704.48
	169018.71	0.11	18592.06	

3.4.3.7

3-20

		t	**tCO_2e**	**tCO_2e**	
		159.76	159.76	159.76	-
		-	-	-	-
CH_4		225.36	4732.62	4732.62	-
CH_4	CH_4	-	-	-	-
	CH_4	-	-	-	-
	CH_4	-	-	-	-
CO_2		-	-	-	-
		11112.42	11112.42	11112.42	-
		18592.06	18592.06	18592.06	-
tCO_2e	CO_2		4892	4892	-
	CO_2		34597	34597	-

3.4.4

2740

3.5

1 EHS

2

3

4

EHS EHS

3.6

3.7

	18592.06	18592.06	18592.06	-
	CO_2	4892	4892	-
tCO_2e	CO_2	34597	34597	-

4.2.2

2740

4.3

2020 2019 12.22%

2019 21.56%

4.4

2020

1

1	/	/	/

2

1	
2	
3	

3

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