

TEST REPORT

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Date: 05/06/2020

Your Ref: -

Our Ref: MM 8500106136/T

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Subject : Testing of 'EPDM Rubber Gasket' for use in contact with water intended for human consumption submitted by Chong Cheong Foundry Works Pte Ltd on 03/04/2020 and testing commenced on 13/04/2020.

Tested For : **Chong Cheong Foundry Works Pte Ltd**
6 Sixth Lok Yang Road
Singapore 628104
Attention: Mr. Max Lim

Test Method : **SS375:2015 - Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water.**

1) Part 1 : Specification
2) Part 2:1 : Samples for testing
3) Part 2:2:1 : Odour and flavour of water
4) Part 2:3 : Appearance of water
5) Part 2:4 : Growth of aquatic micro-organisms
6) Part 2:5 : The extraction of substances that may be of concern to public health
7) Part 2:6 : The extraction of metals
8) Part 3 : High temperature tests

Sample Description : "RUBBER GASKET", Material: EPDM, Size: DN100, Manufacturer: Andhra Polymers Pvt. Ltd (Logo: APPL), Country of origin: India, Year of manufacturer: 2020. The sample was tested as per surface area basis per litre.

Sampling Info : EPDM Rubber Gasket for flange gaskets of size DN100 were sampled by PUB and witnessed by Chong Cheong Foundry Works Pte Ltd. Sample were then delivered to SetSCO Services Pte Ltd by Chong Cheong Foundry Works Pte Ltd and escorted by PUB on 01/04/2020.

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Results :

1) Odour and Flavour of Water

Temperature of Extraction: 40°C.

One sample was tested.

No discernible odour was detected in the seventh chlorine-free and chlorinated extracts.
No flavour was detected in the first dilution of both seventh chlorine-free and chlorinated extracts. The seventh extract shall be defined as the final extract.

*The results obtained show that the sample **complies** with the requirements of SS375:2015:Part 2:2:1 for the odour and flavour of water test.*

2) Appearance of Water

Temperature of Extraction: 40°C

One sample was tested.

Test	Sample	Requirements of SS375: Part 1: Specification (Maximum Admissible Level)
	1 st Extract	
Colour (Hazen Units)	<2.5	5
Turbidity (FNU)	0.1	0.5

*The results obtained show that the sample **complies** with the requirements of SS375:2015:Part 2:3 for the appearance of water test.*

3) Growth of Aquatic Microorganisms

Test Temperature: 30°C

One sample was tested.

MDOD (Mean Dissolved Oxygen Difference)

Determination	MDOD (mg/L)	Requirements of SS375: Part 1: Specification (MDOD, mg/L)
Positive Reference	7.7	7.5 ± 2.5
Negative Reference	0.2	0.0 ± 0.6
Test Sample	0.89	≤ 1.69

MDOC (Mean Dissolved Oxygen Concentration)

Determination	MDOC (mg/L)	Requirements of SS375: Part 1: Specification (MDOC, mg/L)
Control	9.9	8.5 ± 2.5

*The results obtained show that the sample **complies** with the requirements of SS375:2015:Part 2:4 for the growth of aquatic micro-organisms test.*



4) The extraction of substances that may be of concern to public health

Temperature of Extraction: 40°C

One sample was tested.

Presence of confluent cell layer was observed in the test extract in contact with Vero cells.

This observation indicates a non-cytotoxic response of the test extract to the cells.

*The results obtained show that the sample **complies** with the requirements of SS375:2015:Part 2:5 for the cytotoxicity test.*

5) The extraction of metals

Temperature of Extraction: 40°C

Two samples were tested.

Analysis was performed using ICP/AAS and ICPMS.

Determination	Results of Metal Content in Final Extract (µg/L)		Max Allowable Concentration (µ g/L)
	First Extract		
	Sample 1	Sample 2	
Aluminium as Al	<20	<20	200
Antimony as Sb	<0.5	<0.5	5
Arsenic as As	<1	<1	10
Boron as B	<200	<200	2400
Barium as Ba	<100	<100	700
Cadmium as Cd	<0.5	<0.5	3
Chromium as Cr	<5	<5	50
Iron as Fe	<20	<20	200
Lead as Pb	<1	<1	10
Manganese as Mn	<5	<5	50
Mercury as Hg	<0.1	<0.1	1
Nickel as Ni	<2	<2	20
Selenium as Se	<1	<1	10
Silver as Ag	<10	<10	100

*The results obtained show that the sample **complies** with the requirements of SS375:2015:Part 2:6 (Table 1) for the extraction of metals test.*

Conclusion:-

Based on the results obtained, the sample is **suitable** for use in contact with water intended for human consumption in accordance with SS375:2015.



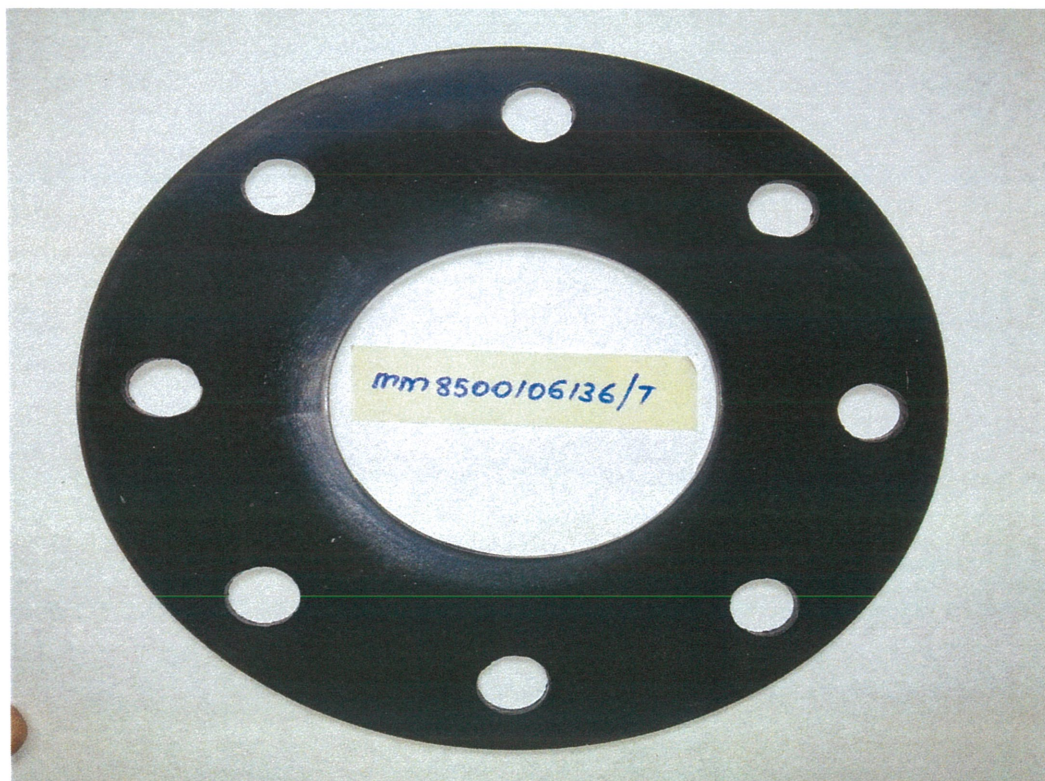
DR. WU JI'EN

MANAGER

BIOLOGICAL & CHEMICAL TECHNOLOGY DIVISION

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Appendix



重昌铸造厂（私人）有限公司
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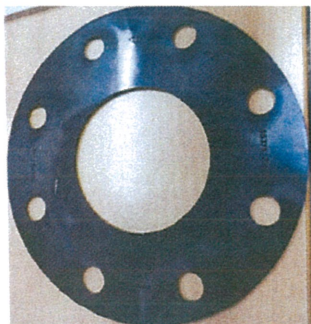


01-04-2020

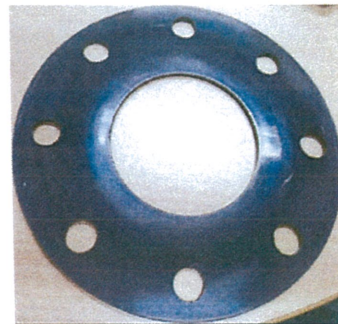
LETTER OF DECLARATION FOR "CC" BRAND EPDM GASKET

This letter served to inform SETSCO Services Pte Ltd that of the following information of the EPDM gasket that is submitted for SS375 testing with the presence of PUB representative.

- i) Brand: CC (Short for Chong Cheong Foundry Works Pte Ltd – Contained with a diamond) 
- ii) Size Submitted: DN100
- iii) Type of Material: EPDM
- iv) Manufacturer's Name: Andhra Polymers Pvt. Ltd (Logo: APPL); Country of Origin: India
- v) Year of Manufacture: 2020
- vi) Colour Photographs (Front & Back)



Front Face

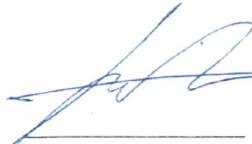


Back Face (Plain)

Front Face consist of following markings in CW direction:

CC – BSEN681-1 – SS375:2015 – EPDM with Kite Mark – PN16 – Gasket Size in DN (DN100) – SS270:2015 – APPL

We hereby declare the information provided to be accurate.




Signature

Max Lim

Manager of Chong Cheong Foundry Works Pte Ltd

Date: 01/4/2020

