



## Test Report No. F690101/LF-CTSAYAA18-69196

Issued Date: 2019. 01. 07

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### CHANGSUNG CORPORATION

1840-29 Seohae-ro, Cheongbuk-eup  
Pyeongtaek-si, Gyeonggi-do  
Korea



The following sample(s) was/were submitted and identified by/on behalf of the client as:-

**SGS File No.** : AYAA18-69196  
**Product Name** : HS Core  
**Item No./Part No.** : N/A  
**Received Date** : 2018. 12. 28  
**Test Period** : 2018. 12. 28 to 2019. 01. 07  
**Test Results** : For further details, please refer to following page(s)

SGS Korea Co., Ltd.

Jeff Jang / Chemical Lab Mgr.

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Sample No. : AYAA18-69196.001

Sample Description : HS Core

Item No./Part No. : N/A

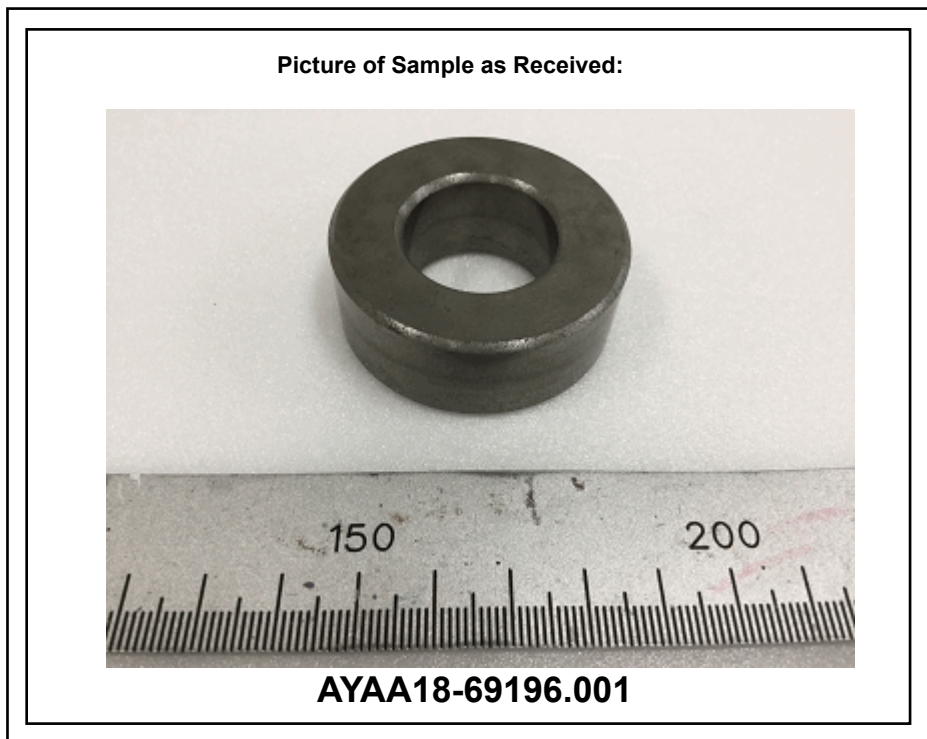
Materials : N/A

## Polycyclic Aromatic Hydrocarbons

Test Items	Unit	Test Method	MDL	Results
Naphthalene (NAP)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Acenaphthylene (ANY)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Acenaphthene (ANA)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Fluorene (FLU)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Phenanthrene (PHE)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Anthracene (ANT)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Fluoranthene (FLT)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Pyrene (PYR)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Benzo(a)anthracene (BaA)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Chrysene (CHR)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Benzo(b)fluoranthene (BbF)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Benzo(j)fluoranthene (BjF) + Benzo(k)fluoranthene (BkF)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.4	N.D.
Benzo(e)pyrene (BeP)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Benzo(a)pyrene (BaP)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Indeno(1,2,3-c,d)pyrene (IPY)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Dibenzo(a,h)anthracene (DBA)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Benzo(g,h,i)perylene (BPE)	mg/kg	AfPS GS 2014:01 PAK, GC/MS	0.2	N.D.
Sum of 18 PAHs	mg/kg	AfPS GS 2014:01 PAK, GC/MS	-	N.D.

- NOTE: (1) N.D. = Not detected.(<MDL)  
(2) mg/kg = ppm  
(3) MDL = Method Detection Limit  
(4) - = No regulation  
(5) \*\* = Qualitative analysis (No Unit)  
(6) Negative = Undetectable / Positive = Detectable

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## Remark 1 : AfPS (German commission for Product Safety) : GS PAHs requirements

Parameter	Category1	Category2		Category3	
	Material indented to be put in the mouth or toys with intended skin contact (longer than 30 s).	Materials not falling under category 1 with foreseeable contact to skin for longer than 30 seconds (long-term skin or frequent contact).		Materials not falling under category 1 or 2 with foreseeable contact to skin for less than 30 seconds (short-term skin contact).	
		Toy under 2009/48/EC	Other products under ProdSG	Toy under 2009/48/EC	Other products under ProdSG
Naphthalene (mg/kg)	< 1	< 2		< 10	
Acenaphthylene (mg/kg)	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Acenaphthene (mg/kg)					
Fluorene (mg/kg)					
Phenanthrene (mg/kg)					
Anthracene (mg/kg)					
Fluoranthene (mg/kg)					
Pyrene (mg/kg)					
Benzo[a]anthracene (mg/kg)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene (mg/kg)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[b]fluoranthene (mg/kg)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[j]fluoranthene (mg/kg)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[k]fluoranthene (mg/kg)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[a]pyrene (mg/kg)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[e]pyrene (mg/kg)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno[1,2,3-cd]pyrene (mg/kg)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenz[a,h]anthracene (mg/kg)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[g,h,i]perylene (mg/kg)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Sum 18 PAH (mg/kg)	< 1	< 5	< 10	< 20	< 50

**Remark:** The German committee on Product Safety (AfPS) adopted a new PAHs document on August 4, 2014, which is taken into account by the GS certification bodies for the certification process of the GS mark now. The transitional arrangements and deadlines contained therein shall determine the procedure for existing certificates and new certificates; also there are exceptions. The previously valid PAK-document (ZEK 01.4-08, English version) will be repealed after 30th of June.2015.

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## Remark 2 : Polycyclic aromatic hydrocarbons (PAHs) Content (REACH Annex XVII Entry 50 paragraph 5 to 8)

Test Item	Limits (mg/kg)	
	Consumer product	Toy or childcare product
Benz[a]anthracene	1.0	0.5
Chrysene	1.0	0.5
Benzo[k]fluoranthene and Benzo[j]fluoranthene	1.0	0.5
Benzo[b]fluoranthene	1.0	0.5
Benzo[a]pyrene	1.0	0.5
Benzo[e]pyrene	1.0	0.5
Dibenz[a,h]anthracene	1.0	0.5

\*\*\* End of Report\*\*\*

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