

**Test Report No.** 5939427

**Date :** 8-Jul-2024

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**Client : Excel Packaging Co.,Ltd.  
135,135/1-2 Moo 9 Soi Kratoomlom 9 Puthamonthon Sai 4 Road  
Kratoomlom,Sampran Nakornpathom 73220 Thailand**

The following sample(s) was/were submitted and identified by client as:

Sample Name : PS (Sheet & Tray)  
Sample Description : PS  
Color : GOLD(GD21)

The following sample(s) was/were identified by SGS as:

SGS Sample No. : 6250951  
Sample Condition : Sample is contained in a plastic bag.  
Quantity Submitted : 2 pack  
Sample Receiving Date : 1-Jul-2024  
Testing Period : 1-Jul-2024 to 8-Jul-2024

Test Method & Results : Please refer to next page(s).

**Signed for and on behalf of  
SGS (Thailand) Ltd.**



**Rutchuporn Moungsom  
Toys and Hardlines Laboratory Manager**



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**Test Requested & Result Summary**

Test Requested : Please refer to the result summary (Test parameter(s) was/were selected by client).

**Result Summary:**

| Test Requested   | Conclusion |
|--|------------|
| Notification of the Ministry of Public Health (No.435) B.E. 2565 (2022)<br>(List no.2 table 1 and 2) : Qualities or standard for container made from plastic | --         |

a) Polystyrene (PS)

|   |             |
|---|-------------|
| 1. Lead content   | PASS        |
| 2. Cadmium content  | PASS        |
| 3. Heavy metal (as lead) in 4% concentrated acetic acid extraction                            | PASS        |
| 4. Quantity of potassium Permanganate Consumed  | PASS        |
| 5. Residue after Evaporation Test   | PASS        |
| 6. Migration of color Extraction  | PASS        |
| 7. Volatile substances<br>(Styrene,Toluene,Ethylbenzene,Isopropylbenzene and n-Propylbenzene) | PASS        |
| 8. Pathogenic microorganisms  | See results |

**Remark:**

1. Test results in this report are applicable for the item tested and reflects the tested sample as received.
2. The decision rules based on simple acceptance which the probability of false accept may be as high as 50% in case the results is exactly on the tolerance limit.

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TEST RESULTS

Notification of the Ministry of Public Health (No.435) B.E. 2565 (2022) (List no.2 table 1 and 2) : Qualities or standard for container made from plastic;

a) Polystyrene (PS)

Qualities and standard of plastic

Method : With reference to TIS 656: 2556. Analysis was performed by ICP-OES.

| Details            | Result (1)<br>(mg/kg) | Limit of Quantitative<br>(mg/kg) | Permissible Limit<br>(mg/kg) |
|--------------------|-----------------------|----------------------------------|------------------------------|
| Lead content***    | <2                    | 2.0                              | 100                          |
| Cadmium content*** | <2                    | 2.0                              | 100                          |

Sample Description :

1. Gold plastic sheet

Note :

1. mg/kg = milligram per kilogram
2. < = Less than

Remark: The test item(s) marked \*\*\* on test report is/are analyzed at SGS (Thailand) Limited, address: 10, 10/1 - 4 and 12 Soi Rama III S. 59, Chong Nonsi, Yan Nawa, Bangkok.

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**TEST RESULTS**

**Qualities and standard of dissemination**

Method : With reference to TIS 656: 2556.

| Details  | Test Condition <sup>^</sup>             | Result (1)<br>(mg/dm <sup>3</sup> ) | Limit of Quantitative<br>(mg/dm <sup>3</sup> ) | Permissible Limit<br>(mg/dm <sup>3</sup> ) |
|--|---|-------------------------------------|--|--|
| Heavy metal (calculated as lead) in 4% concentrated acetic acid extraction | 30 minute at 95 degree C                | <1                                  | --   | 1  |
| Potassium permanganate used for reaction in water extraction               | 30 minute at 95 degree C                | <1                                  | 1.0  | 10   |
| Residue substances which is evaporate in water                             | 30 minute at 95 degree C                | <3                                  | 3.0  | 30   |
| Residue substances which is evaporate in 4% concentrated acetic acid       | 30 minute at 95 degree C                | <3                                  | 3.0  | 30   |
| Residue substances which is evaporate in 20% concentrated alcohol          | 30 minute at 95 degree C                | <3                                  | 3.0  | 30   |
| Residue substances from volatile matters in normal heptane                 | Room temperature (1 hr. at 25 degree C) | 49                                  | 3.0  | 240  |

**Sample Description :**

1. Gold plastic sheet

**Note :**

1. mg/dm<sup>3</sup> = milligram per cubic decimeter
2. Degree C = degree Celsius
3. < = Less than

**Remark :**

1. <sup>^</sup> = In case of the use at temperature higher than 100 degree Celsius

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**TEST RESULTS**

**Qualities and standard of dissemination**

Test Method : With reference to TIS 655 -1 : 2553

| Details   | Test Condition <sup>^</sup>             | Result (1)               | Permissible Limit |
|---|---|--------------------------|-------------------|
| Migration of color extract by water                       | 30 minute at 95 degree C                | Negative<br>(See Note 2) | Negative          |
| Migration of color extract by 4% concentrated acetic acid | 30 minute at 95 degree C                | Negative<br>(See Note 2) | Negative          |
| Migration of color extract by 20% concentrated alcohol    | 30 minute at 60 degree C                | Negative<br>(See Note 2) | Negative          |
| Migration of color extract by normal heptanes             | Room temperature (1 hr. at 25 degree C) | Negative<br>(See Note 2) | Negative          |

**Sample Description :**

1. Gold plastic sheet

**Note :**

1. Degree C = degree Celsius
2. "Negative" mean it's not presence of color migration/ "Positive" mean it's presence of color migration

**Remark :**

1. <sup>^</sup> = In case of the use at temperature higher than 100 degree Celsius

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**TEST RESULTS**

**Qualities and standard of plastic**

Method : With reference to TIS 656 - 2556. Analysis was performed by GC-FID.

Polystyrene - Volatile substances (Styrene, Toluene, Ethylbenzene, Isopropylbenzene and n-Propylbenzene)\*\*\*

| Volatile substances | Result (1) (mg/kg) | Limit of Quantitation (mg/kg) | Limit (mg/kg) |
|---------------------|--------------------|-------------------------------|---------------|
| Styrene             | 517                | 100                           | 1000          |
| Toluene             | <100               | 100                           | --            |
| Ethylbenzene        | <100               | 100                           | 1000          |
| Isopropylbenzene    | <100               | 100                           | --            |
| n-propylbenzene     | <100               | 100                           | --            |
| Total               | 517                | --                            | 2000          |
| Comment             | PASS               | --                            | --            |

**Sample Description :**

1. Gold plastic sheet

**Note :**

1. mg/kg = milligram per kilogram
2. < = Less than

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**TEST RESULTS**

**Pathogenic microorganisms**

| Test Items                         | Method   | Results      | Units     |
|------------------------------------|--|--------------|-----------|
| <i>Salmonella spp.</i> ***         | ISO 6579-1 : 2017  | Not detected | Per piece |
| <i>Staphylococcus aureus</i> ***   | Compendium of methods for the examination of foods,5th edition,2015,chapter 39 | Not detected | Per piece |
| <i>Clostridium perfringens</i> *** | Compendium of methods for the examination of foods,5th edition,2015,chapter 33 | Not detected | Per piece |
| <i>Bacillus cereus</i> ***         | Compendium of methods for the examination of foods,5th edition,2015,chapter 31 | Not detected | Per piece |
| <i>E.coli</i> ***                  | Compendium of methods for the examination of foods,5th edition,2015,chapter 9  | Not detected | Per piece |
| Total Plate Count***               | ISO 4833-1: 2013   | Less than 1  | CFU/piece |

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### SAMPLE/ATTACHMENT PICTURE



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

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