THE ŁUKASIEWICZ RESEARCH NETWORK
INSTITUTE FOR ENGINEERING OF POLYMER MATERIALS & DYES

PAINT & PLASTICS DEPARTMENT
in Gliwice, Poland

Endurance Laboratory

Report from research: GFW/127/2019
Case # GFW.4131.50.2019

Type of research: Tests of a child-resistant packaging closure according to PN-EN ISO 8317:2016-03.
Subject of research: stand-up pouch with the child-resistant press to close zipper type H20-2CR - with dimensions: 152 x 520 mm, 240 x 580 mm.
Name and address of the client: Grupa Inco S.A.

Sample material: 127/1÷2/2019 – accepted: 27.05.2019
Research: commenced: 29.05.2019 completed: 13.06.2019
The tests conducted by: Sebastian Jurczyk, Błażej Chmielnicki, Sonia Podbilska
Report prepared by: Sebastian Jurczyk,
Report approved by: Justyna Kożuch

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1. **Description of the sample:** the client submitted stand-up pouches (sachets) with the child-resistant press to close zipper type H20-2CR with the dimensions:

- 152 x 520 mm, thickness of film 102 (±5%) µm; sample is marked 127/1/2019,
- 240 x 580 mm, thickness of film 132 (±5%) µm; sample is marked 127/2/2019,

Submitted samples were the smallest and the biggest packages of the range declared by the client. The press to close zipper (the child resistant H20-2CR) was sealed on the whole width of the stand –up pouch:
for sample 127/1/2019 the press to close zipper was sealed on the side of the length 152 mm and for sample 127/2/2019 the press to close zipper was sealed on the side of the length 240 mm. The client submitted technical drawings of the stand-up pouches entitled as the project 70222 and the instruction manual for the opening of stand-up pouches.

2. **Description of tests**:

Preparation of samples for the tests:
The tests were carried for the compliance with the standard: PN–EN ISO 8317:2016-03
Packaging secured against the opening by a child – requirements and methods of the tests carried on the re-closable packaging, in two age groups, according to point 3.2:

- performed by children according to PN–EN ISO 8317:2016-03 – point 4.4,
- performed by adults according to PN–EN ISO 8317:2016-03 – point 4.5.

Thermoplastic granules were used as an alternative for filling the packaging during the tests. The stand-up pouches were filled with the following:
- stand-up pouch 152 x 520 mm, thickness of film 102 (±5%) µm - 250 g,
- stand-up pouch 240 x 580 mm, thickness of film 132 (±5%) µm - 550 g.

a) **research conducted on children**

Tests performed by children were conducted in kindergartens in the presence of the person carrying the research and the supervision staff which have proper pedagogical qualifications. The whole group of children performing the test had 154 members:

- 68 children performed the test on stand-up pouch with dimensions: 152 x 520 mm, thickness of film 102 (±5%) μm,
- 86 children performed the test on stand-up pouch with dimensions: 240 x 580 mm, thickness of film 132 (±5%) μm.

The tests were carried by the sequential method, which had the following stages:

- 1st stage – the attempt to open the stand-up pouch before the instruction- 5 minutes
- 2nd stage – the attempt to open the stand-up pouch after the instruction – 5 minutes

At the first stage all children attempted to open the stand-up pouch. Among children undergoing the test with stand-up pouch 152 x 520 mm, thickness of film 102 (±5) μm at the 1st stage two of the children managed to open the tested packaging in the period of 5 minutes. For the 2nd stage of the test only children who didn't managed to open the packaging in the 1st stage were accepted. Among children undergoing the test with stand-up pouch 240 x 580 mm, thickness of film 132 (±5) μm at the 1st stage one child managed to open the tested packaging in the period of 5 minutes. For the 2nd stage of the test only children who didn't managed to open the packaging in the 1st stage were accepted. Before moving for the 2nd stage the person carrying the research checked the correctness of the closure of not opened packaging and presented the proper way in which the packaging should be opened. After the 2nd stage was completed the number of opened stand-up pouches was recorded. Appendices # 1a and 1b illustrates the outcomes. While carrying the research the protocols were written – Appendices # 2a and 2b.
The place where the research was carried:

- Kindergarten # 29 in Gliwice,
- Kindergarten # 9 in Zory,
- Kindergarten # 12 in Zory,
- Kindergarten # 17 in Zory

The representatives of the client and the representatives of the client's contractor were present during the research. The presence of the observers were in accordance with: PN-EN ISO 8317:2016-03 p. 4.4.1.3 with the descriptions of the requirements written in point 4.4.1.1 of the given standard. In the kindergarten 29 in Gliwice Ms. Justyna Banaszczyk represented the client whilst the contractor was represented by Ms. Ewa Alejnikow and Mr. Marcin Pawelak. In the kindergarten # 9 in Zory Ms. Justyna Banaszczyk and Mr. Janusz Rochnowski represented the client whilst the contractor was represented by Mr. Sylwester Szalanski. In the kindergarten # 12 in Zory Ms. Justyna Banaszczyk and Mr. Janusz Rochnowski represented the client whilst the contractor was represented by Mr. Sylwester Szalanski and Mr. Damian Kowalski In the kindergarten # 17 in Zory Ms. Justyna Banaszczyk represented the client whilst Mr. Damian Kowalski represented the contractor.

b) **research conducted on adults**
Before starting the tests with adults the initial selection was carried in which the group on which the test was carried was asked: "Are you professionally related to designing, producing or using the packages secured by the mechanisms not allowing to be opened by the children?" The tests were carried on people who replied negatively for asked question. The tests were carried on the group of 100 adults, the group comprised of:

- 70 women (17 in age of 50-54, 18 in age of 55-59 and 35 in age 60-70)
- 30 men (8 in age 50-54, 7 in age 55-59 and 15 in age 60-70)

The instruction manual for opening the package were presented to the performers before the test (Appendix # 4). The test involved an attempt to open and close the package in 5 minutes and re-open and re-close the package in 1 minute. After the given time passed the person carrying the test checked the correctness of the re-closing of the package. All participants of the test has been qualified for the 2nd stage of the test. The test results involving adults is presented in table 2 (the test lasting 1 minute). Similarly to the test involving children while carrying the research the protocols were written – Appendices # 3a and 3b.

The representatives of the client and the representatives of the client's contractor were present during the research. During the tests carried in The Łukasiewicz Research Network Institute for Engineering of Polymer Materials & Dyes, Paint & Plastics Department in Gliwice Ms. Justyna Banaszczyk represented the client whilst Ms.Ewa Alejnikow and Mr. Marcin Pawelak represented the client's contractor.

3.**Test results**: Test results were presented in table 1 and 2.

Table 1. Test results involving children, with accredited method (Status of the Method – A)

#	The type of tested package	The number of the children involved in the test	The number of opened packages/percentage %	
			Before the presentation	After the presentation
1.	stand-up pouch with dimensions 152 x 520 mm with child-resistant press to close zipper - type H20-2CR, thickness of film 102 (±5%) µm	68	2/2,9	3/4,5

2.	stand-up pouch with dimensions 240 x 580 mm with child-resistant press to close zipper type H20-2CR , thickness of film 132 (±5%) µm	86	1/1,2	5/5,9

The graph of the sequential method of the test involving children was presented graphically in appendices 1a and 1b.

Table 2. Test results involving adults, with accredited method (Status of the Method – A)

The number of adult participants	**The number of the packages correctly re-opened and re-closed after the 1 minute**	
	stand-up pouch with dimensions 152 x 520 mm with child-resistant press to close zipper type H20-2CR, thickness of film 102 (±5%) µm	stand-up pouch with dimensions 240 x 580 mm with child-resistant press to close zipper type H20-2CR, thickness of film 132 (±5%) µm
17 (women 50-54)	17	17
18 (women 55-59)	18	18
35 (women 60-70)	34	31
8 (men 50-54)	8	8
7 (men 55-59)	7	7
15 (men 60-70)	15	15
Total	99	96

Conclusion:
The general result of the test of the stand-up pouch with the child-resistant press to close zipper type H20-2CR
Stand-up pouches with dimensions:
-152 x 520 mm, thickness of film 102 (±5%) µm,
-240 x 580 mm, thickness of film 132 (±5%) µm,
The test results are positive.
The tests presented in above report were carried for the smallest and the biggest packages of the range declared by the client according to: PN-EN ISO 8317:2016-03 p. 3.1.2.2, p. 3.1.2.3 i p. 3.1.2.4. Due to that according to: PN-EN ISO 8317:2016-03 p. 3.1.2.4 the test result is treated as a positive for all packages included in the range of stand-up pouches with the child resistant press to close zipper type H20-2CR ranging from 152±1 mm to 240±1 mm with the thickness of film from 102 (±5%) µm to 132 (±5%) µm.

The end of the report.