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Didak Injection
M. Emiel Van Hemeldonck
Industrieweg1
2280 Grobbendonk

your reference
your reference

our reference
20-2851 Rapport - Labtool
S210031
contact person
Schoumaker Francine
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Liège
22/06/2021

Rapport

Dear Sir,

please find attached the report concerning the compression tests on your products after oven aging.

We stay at your disposal for any complementary information.

Best regards,

F. Schoumaker   M. Gasparini
Laboratory coordinator   Laboratory manager

Remarks

BQA_QMS019_C_2017325

TESTS REPORT   **Ref: 20-2851**
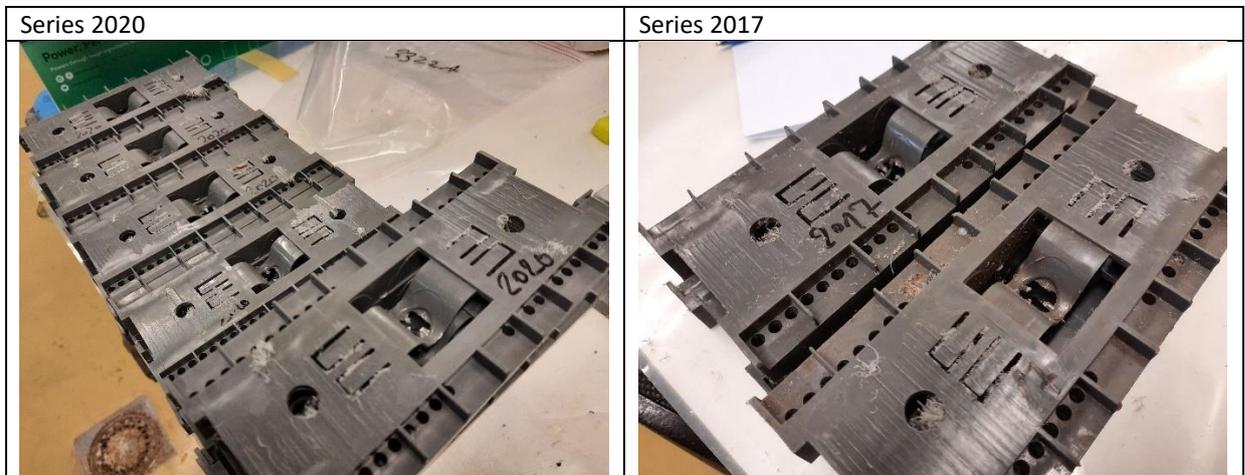

Company : Didak

CONCERNING : Compression tests

Samples type : Injection moulded part

Receipt date: 16/02/21

Client (identification) reference: Series 2020
                                       Series 2017

Sirris Reference: Idem

Samples conditioning:

According to the laboratory normal atmosphere: ISO 291
Temperature: 23°C - Humidity: 50%
Minimum of 48 hours in the laboratory atmosphere

Ageing specifications ISO 9142 cycle A.
15 hours at 40°C - 90% RH
descent in 1 hour at -20°C
2 hours stabilisation at -20°C
Rise to 70°C in 1 hour
4 hours stabilisation at 70°C - 50% RH
and descent to 40°C in 1 hour.

Repeat the cycle to obtain 500-1500 and 2000 hours of ageing

Analysis
Compression tests

Methodology

Compression tests
Machine parameters
Machine Shimadzu AG-Xplus   Test speed : 2mm/min
Temperature : (Deg C) : 23±2°C   Humidity(%)50±5%
The first tests are carried out on a 100kN capacity machine and the second tests are carried out on a 300kN capacity machine.
The 100kN and 300kN load cell calibration certificate and the crosshead speed and displacement calibration certificates are valid and can be sent on request.
Machine and load cell : class 0.5 for the machine 100kN and class 1 for the machine 300kN

The assembly and methodology are the same for both machines.
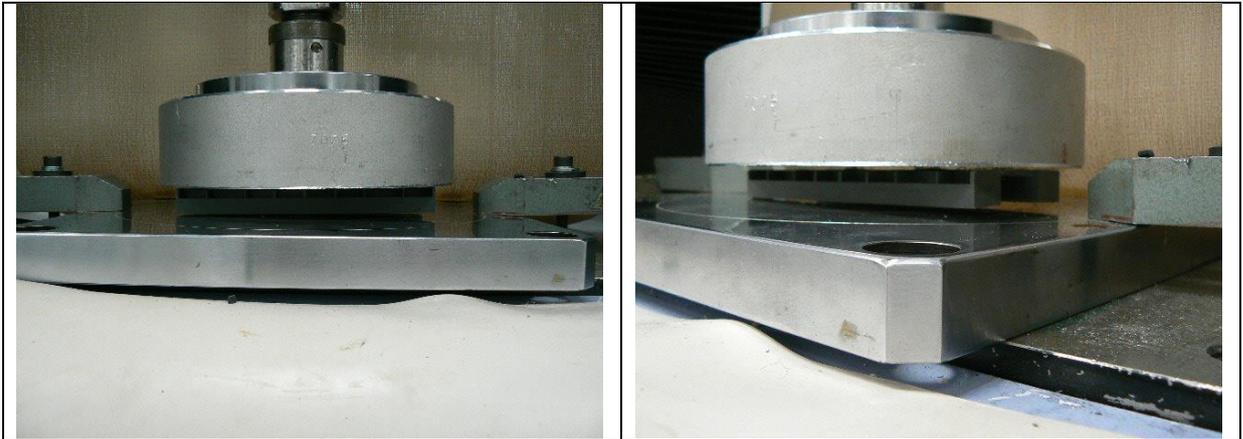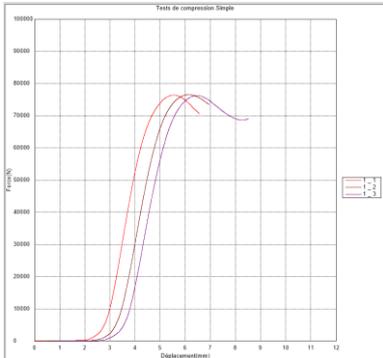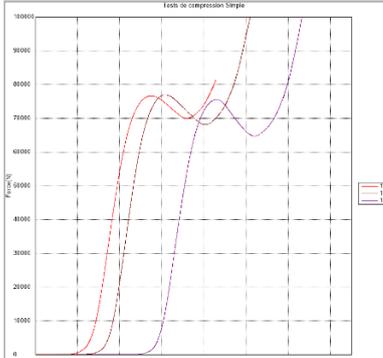

Tests date

21 & 22/06/2021

Sampling

The tests are carried out on the injected part only. The uprights (supports and centring of the bricks) are removed with a band saw before the tests.
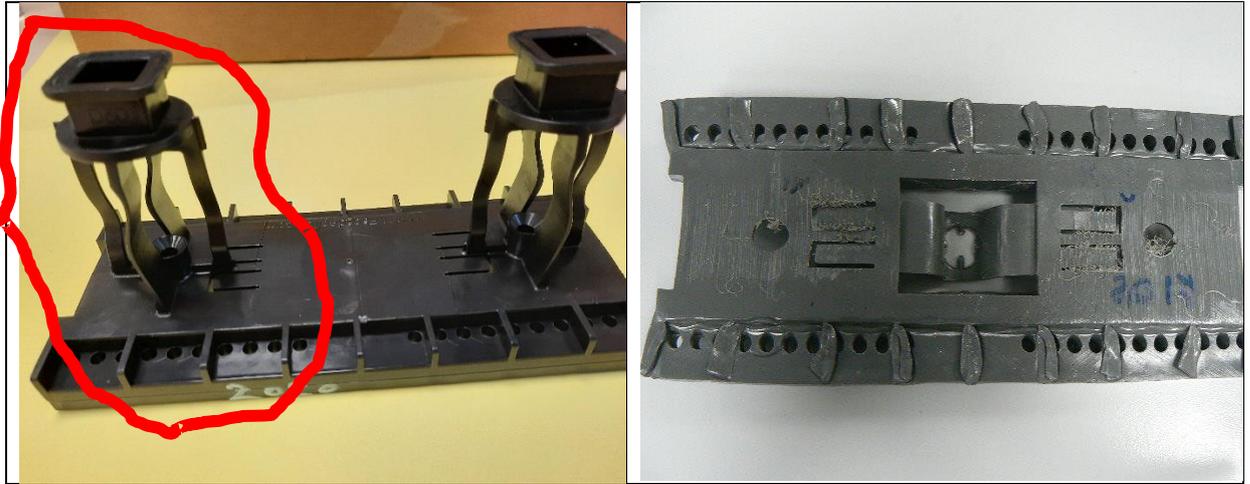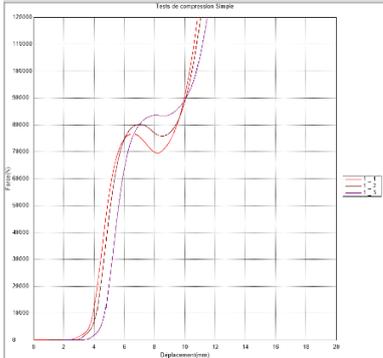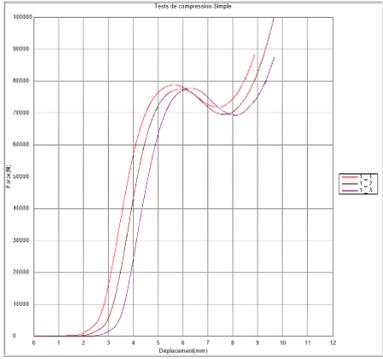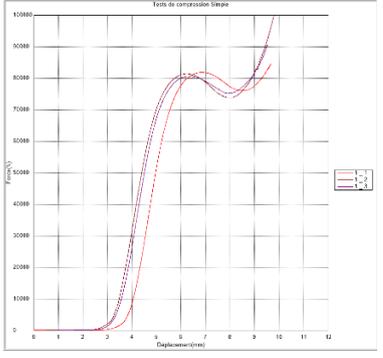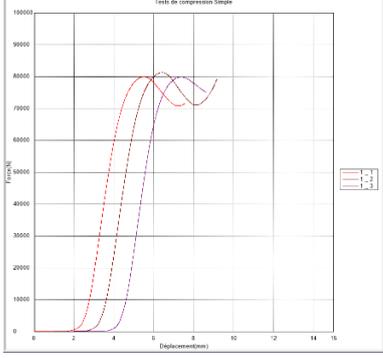
Operator

O. Dony

Results

Sample 2020
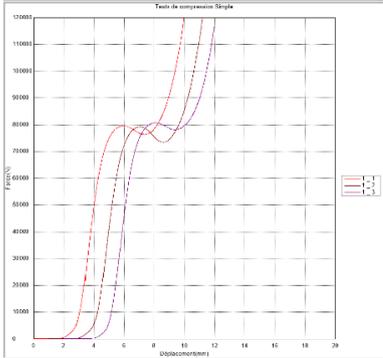
Sample Reference series	Maximum load daN	Displacement at maximum load mm
Sample 1	7936	5.75
Sample 2	7905	5.91
Sample 3	8063	6.12
Average	**7968**	
Standard deviat.	83.7	
%Variation	1%	

Sample 2020
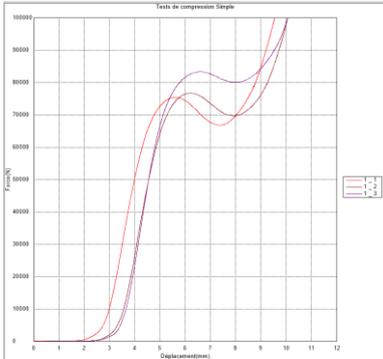
Sample 506 hours aged series	Maximum load daN	Displacement at maximum load mm
Sample 1	7520	5.44
Sample 2	7627	5.47
Sample 3	8319	5.50
Average	**7822**	
Standard deviat.	434	
%Variation	6%	

Sample 2020

Sample 1500 hours aged series	Maximum load daN	Displacement at maximum load mm
Sample 1	7636	5.54
Sample 2	7646	5.65
Sample 3	7617	5.49
Average	**7633**	
Standard deviat.	14.7	
%Variation	0.2%	

Sample 2020

Sample 2000 hours aged series	Maximum load daN	Displacement at maximum load mm
Sample 1	7640	5.33
Sample 2	7680	5.04
Sample 3	7519	6.41
Average	**7613**	
Standard deviat.	83.8	
%Variation	1%	

Results

Sample 2017

Sample Reference series	Maximum load daN	Displacement at maximum load mm
Sample 1	7645	6.38
Sample 2	7974	5.69
Sample 3	8301	5.63
Average	**7973**	
Standard deviat.	328	
%Variation	4%	

Sample 2017

Sample 506h hours aged series	Maximum load daN	Displacement at maximum load mm
Sample 1	7872	5.68
Sample 2	7743	5.38
Sample 3	7744	5.09
Average	**7786**	
Standard deviat.	74.2	
%Variation	1%	

Sample 2017

Sample 1500h hours aged series	Maximum load daN	Displacement at maximum load mm
Sample 1	8172	6.76
Sample 2	8133	5.70
Sample 3	8052	5.23
Average	**8119**	
Standard deviat.	61.21	
%Variation	1%	

Sample 2017

Sample 2000 hours aged series	Maximum load daN	Displacement at maximum load mm
Sample 1	7990	5.52
Sample 2	8120	5.43
Sample 3	7983	5.38
Average	**8031**	
Standard deviat.	77.2	
%Variation	1%	

The values obtained are the loads and displacements before the collapse of a part of the walls. If we leave the machine running we observe that the load curve rises exceeds 25 tons. As our machine has a maximum capacity of 30T we stopped the test .
We found a crushing of the material but no failure.

Graph ageing

Graph of ageing using the average results and standard deviation for each series
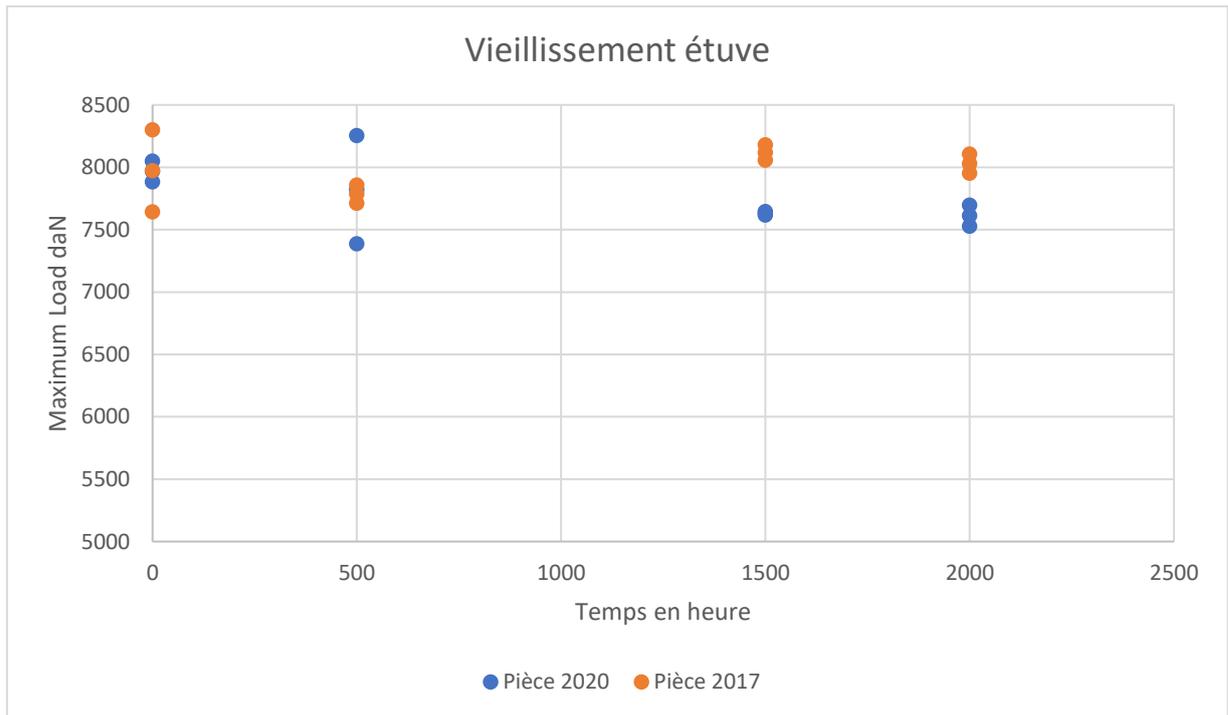
Conclusions : The 2000 hour oven ageing has no real influence on the mechanical behaviour of the test piece. Overall and compared to the results on the references there is no great difference between the 2017 and 2020 parts. After 2000 hours ageing, although there is a slight difference in load from 1500 hours onwards, both parts crush and do not break, which means that both parts have not lost their apparent structural and mechanical integrity. (They did not become brittle)

Remark: Test results are valid only the tested samples as received