

Test Report No.: **300.161/k-e** Date: **2003-05-07**

**PMMA-sheets PLEXIGLAS SOUNDSTOP® GS CC:  
Impact testing according to prEN 1794-2:2002**

**Client:** Para-Chemie GesmbH  
Hauptstraße 53  
A-2440 Gramatneusiedl

**Test item:** PMMA-sheets PLEXIGLAS SOUNDSTOP® GS CC for  
transparent road traffic noise reducing walls, type 15/3500

**Specification of test:** Impact test according to prEN 1794-2:2002; Annex B

**Order:** Ms. Pasler, in writing  
on 2003-03-20, order No. 4512006567

**Date of sampling:** ---

**Place of sampling:** ---

**Receipt of samples:** ---

**Ref.:** sey

## 1 ORDER

As ordered, the following test

- impact test according to prEN 1794-2:2002; Annex B

was to be performed on a road traffic noise reducing wall element at the client's site in his own test facility in the presence of an **ofi**-representant as a third party; **ofi** was in charge of documenting the test and its result and to write this third party test report.

## 2 TESTING SAMPLE

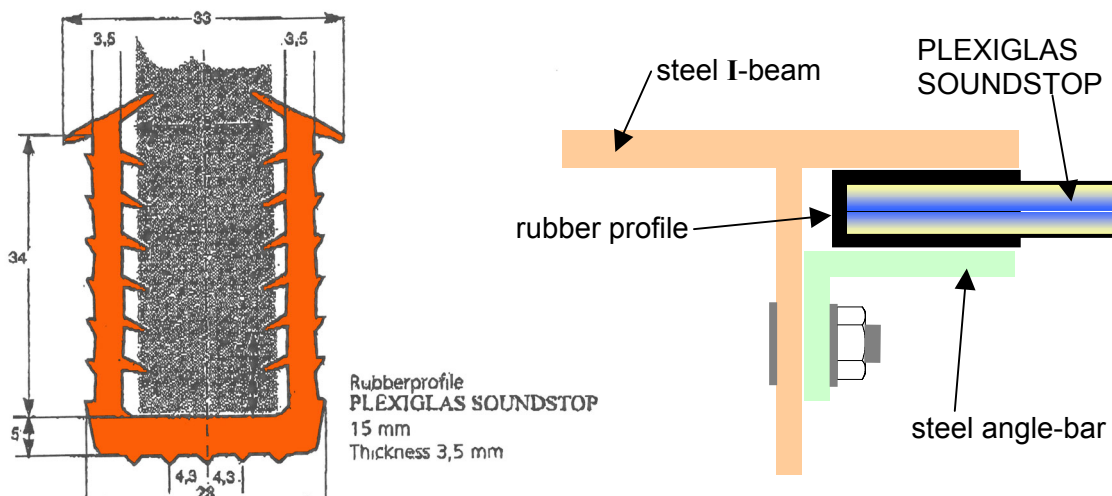
The test item was a road traffic noise reducing wall element, made of the client's product PLEXIGLAS Soundstop® GS CC, type 15/3500, which is a transparent, cast poly-methyl methacrylate (PMMA) sheet with embedded polyamide (PA) filaments. Parallel black coloured PA filaments  $\varnothing$  2 mm were embedded every 30 mm in the PMMA matrix. The test specimen dimensions were 2 × 3 m (w × h), the nominal thickness of the sheet was 15 mm. According to the client's specification, the tested sheet was produced on 2003-03-17 (Lot No. 29724).

## 3 TEST

The test was performed in accordance with prEN 1794-2:2002; Annex B, in the client's outdoor testing facility in Gramatneusiedl on 2003-04-23 at approx. 13:30 (sunny day, outdoor temperature approx 25 °C). Dr. O. Seycek (**ofi**) was supervising the test.

At the beginning of the test, the testing sample was fixed in a holding frame of the testing facility in the same way as in the use, i.e., clamped on three sides (together with special rubber stripes used in the standard holding systems) between steel profiles. To be protected from tear out from the holding frame, the specimen was additionally attached to the frame by steel cable loops in all four sheet corners. This is also a standard measure in the practical use. For details of the clamping geometry see the drawing in Fig. 1 and Fig. 2.

The upper side of the sheet was free as can be seen in Fig. 2. For the test, the specimen was positioned so that the PA filaments were horizontally oriented. The test parameters are listed below. The test run was documented by means of a digital video camera and by photographs (prior and after impact of the impact mass) which are reproduced below (Fig. 3 to Fig. 8); Fig. 3 to Fig 5 are cut off from the digital video film.



**Fig. 1:** Dimensions of the rubber profile and schematic drawing of the clamping system

**Impact test:**

- Testing standard ..... prEN 1794-2:2002; Annex B
- Impact height ..... 1,5 m
- Impact mass..... in accordance with the standard: weight = 400 kg  
(corresponds with the impact energy of 6,0 kJ)
- Site of the impact ..... middle point of the tested sheet of 2 × 3 m
- Radius of the impactor trajectory ... 6,50 m (length of the pendulum)
- Clamping of the test specimen..... pneumatic  
(specimen protected from tear out from the holding frame by steel cable loops in all four sheet corners)

**4 RESULTS**

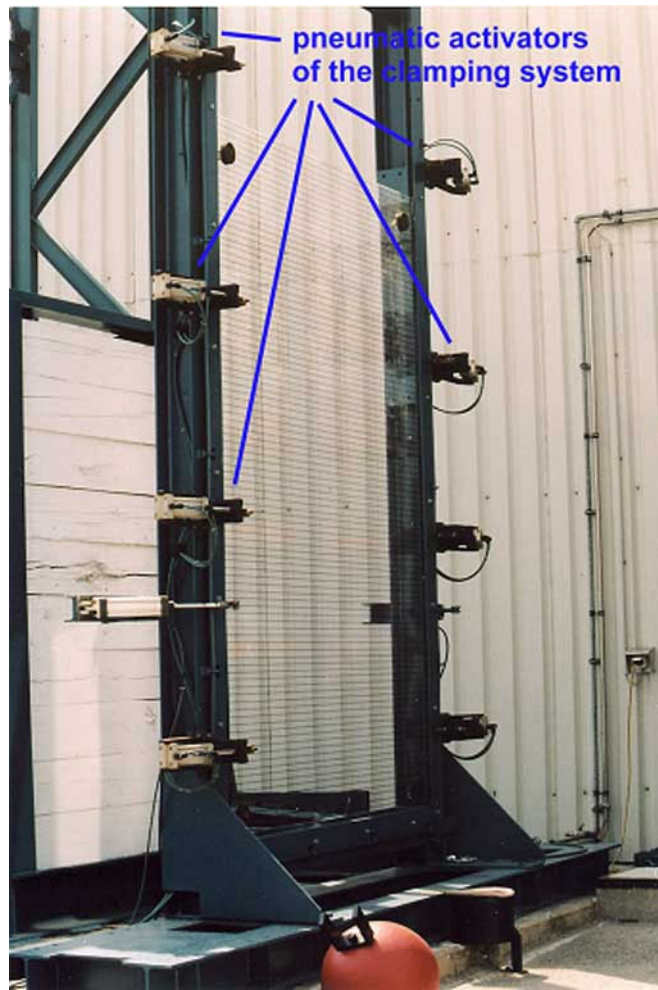
As documented in Fig. 3 to Fig. 8, the impact destroyed the test specimen but it **did not produce any loose fragments** that were

- a) heavier than 100 g and at the same time
  - larger than 25 cm<sup>2</sup>
  - or had edge angles smaller than 15°
  - or were thinner than 1 mm
- b) or heavier than 400 g
- c) or longer than 15 cm

**5 CLASSIFICATION**

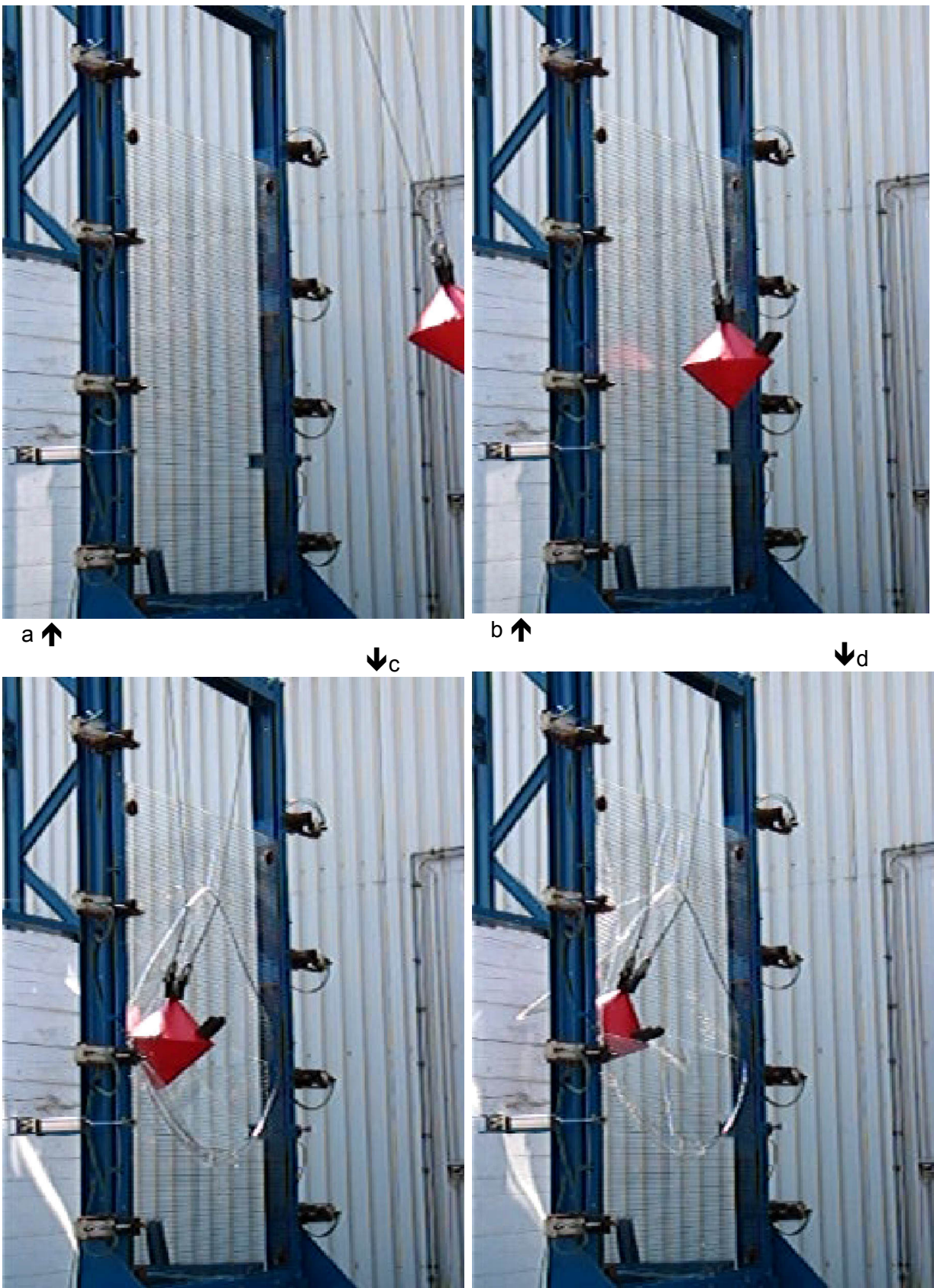
Due to the result of the test (“C” as described in paragraph B.3.8.2 of the standard) the tested road traffic noise reducing wall element PLEXIGLAS SOUNDSTOP® GS CC, type 15/3500, nominal thickness 15 mm, complies with the requirements valid for

ROAD TRAFFIC NOISE REDUCING DEVICE of **CLASS 6**

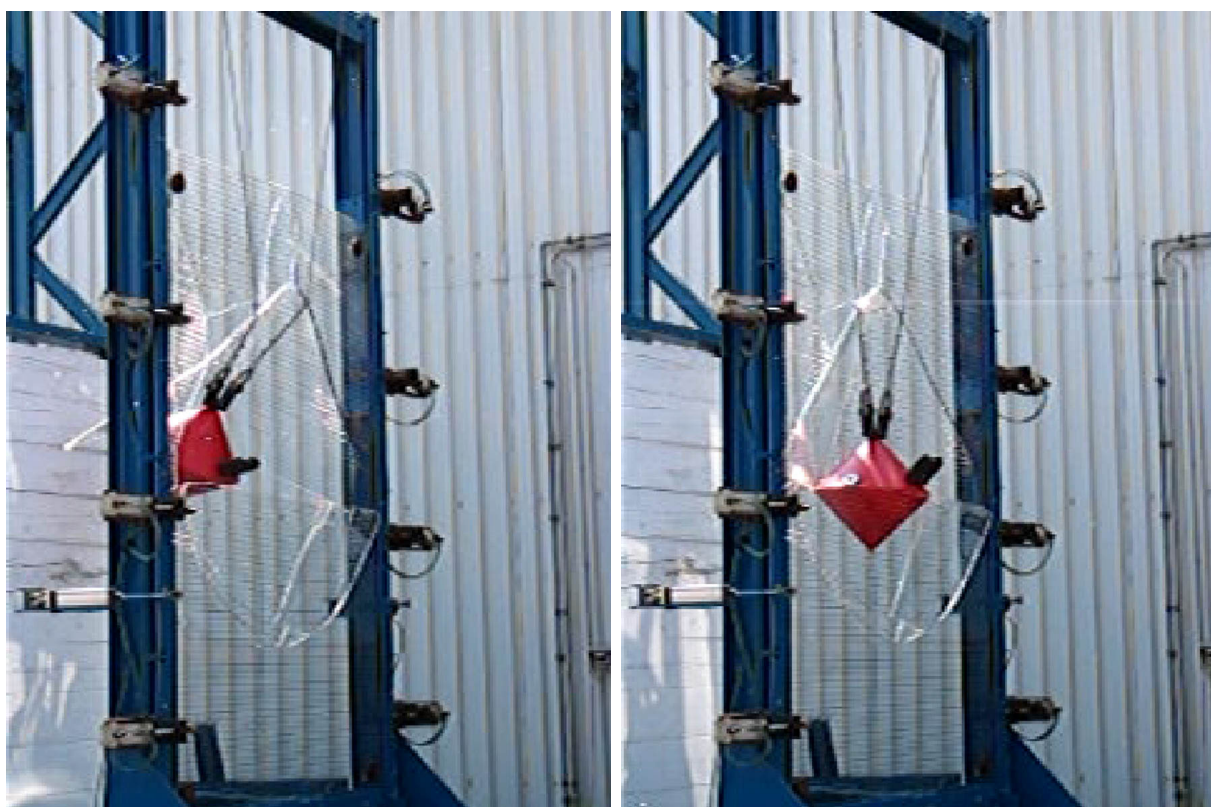


**Fig. 2:** Holding frame with the test specimen prepared for the impact test

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**Fig. 3:** Impact of the steel, double-cone impactor (cut off form the film sequence a → d)



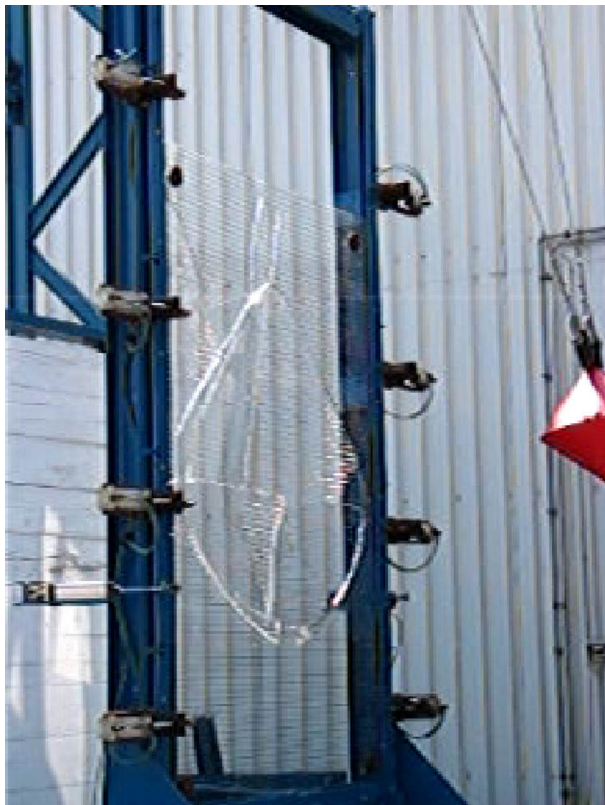
e ↑

f ↑

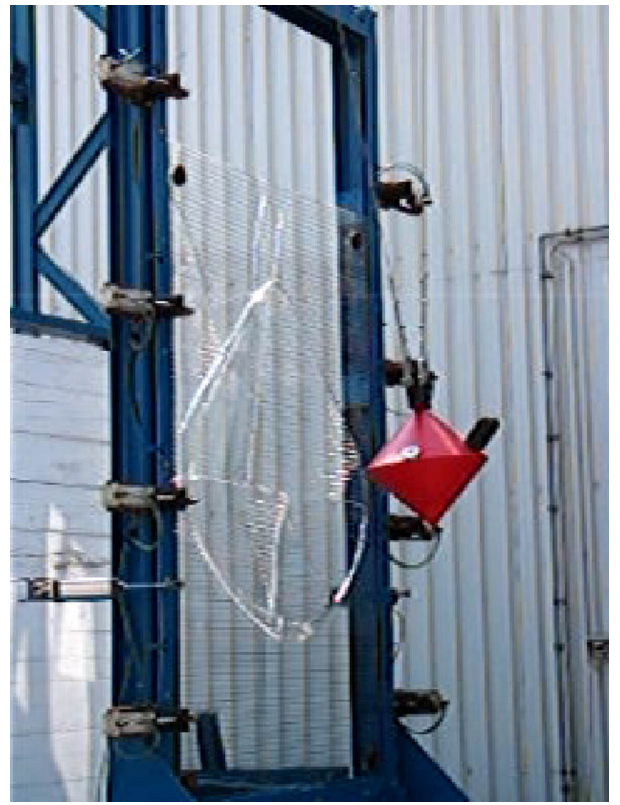
↓ g



**Fig. 4:**  
Impact of the steel double-cone  
impactor and the backswing of the  
pendulum (cut off from the video  
film sequence e → g)



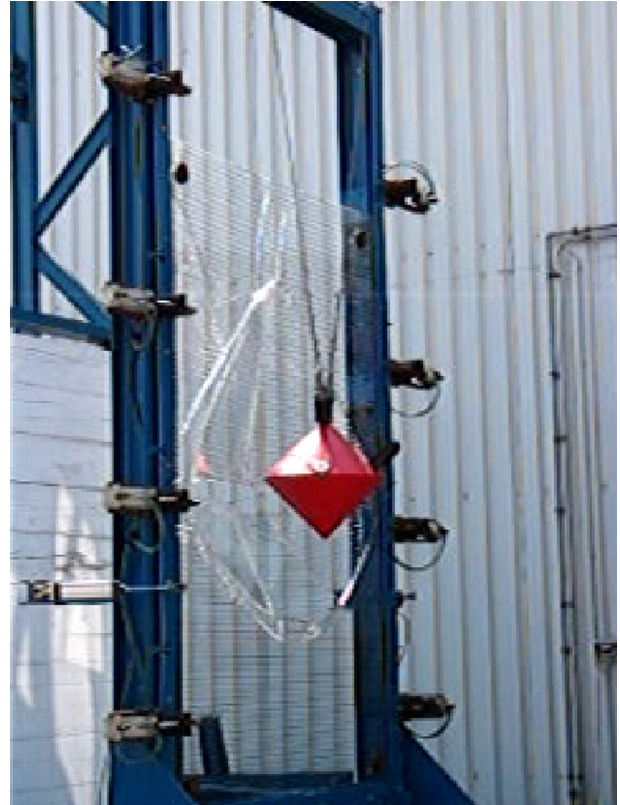
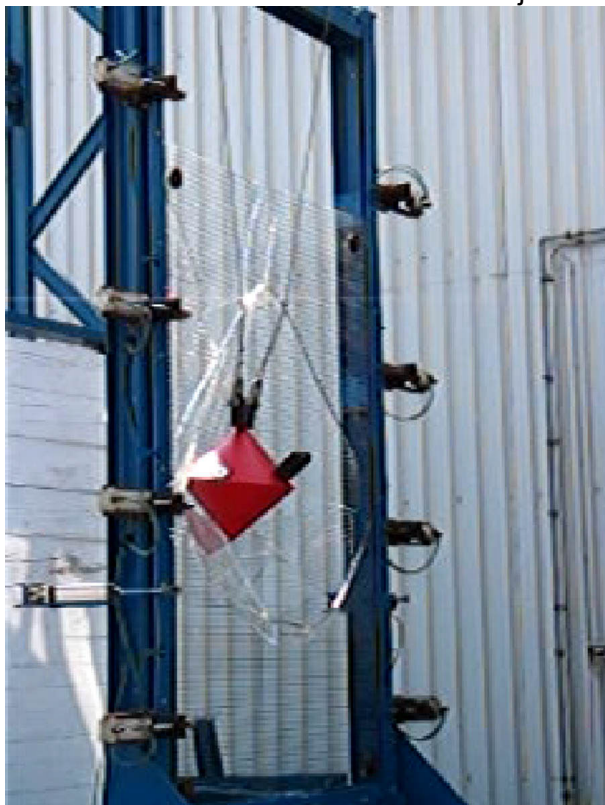
h ↑



i ↑

↓ j

↓ k





**Fig. 6:** Backswing of the pendulum after the first impact (photograph)

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**Fig. 7:** Condition of the broken specimen after the impact test (no loose, large, sharp and heavy fragments were produced)

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**Fig. 8:** Assessment of the broken specimen; all fragments are hold in place by PA-filaments

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The present Test Report No. **300.161/k-e**

comprises 11 sheets with 0 table(s), 8 figure(s), 0 annex(es).

technician

supervisor in charge



Dr. O. Seycek

