ROTHSCHENK

TEST CERTIFICATE

EUROSAFE global transport safety

Version: 03 2016-01-007-4	**Load securing on road vehicles** **Load unit formation of 1 x 216.5 l metal drum and 1 x 200 l L-ring PE drum on CP 2/EURO pallet Single drum securing**	**EUROSAFE Certificate number** 2023-05-003

Test occasion	Load unit stability dynamic tests	**Location of the test**	Sünna; test laboratory Aub: Truck and Sprinter	**Test date**	24.11.2015 (metal barrel) 23.03.2017 (PE drum on truck) 14.03.2025 (Sprinter)
Client	G&H GmbH Rothschenk	**Persons present**	Dipl. Ing. Gräfe / Duolab (metal drum only) Dipl. Ing. Kübel /Duolab (metal drum only) Andre Bauer Rothschenk ö.b.u.v. expert Neumann/EUROSAFE		

1. **Dynamic horizontal test for loads in road traffic (laboratory test) with metal drum:** test scope EUMOS 40509:2012 - dwell time load change 300 - 500 ms at impact frequency "3" with 0.8 m/s².

2. **Additional dynamic driving tests with the PE L-ring drum and metal drum on a road vehicle in accordance with EN 12642 Annex B by more than 3 x full braking and more than 3 x evasive maneuvers at > 40 km/h in Aub:**
   The load units are subjected to the horizontally acting forces in both directions (longitudinal/transverse) of 0.8 g several times in succession (3 times without subsequent manipulation).

3. Standards applied

EUMOS 40509:2021 **DIN EN 55415:2022** **DIN EN 12642:2017**	**ASTM D 4169-09** Pitch & Roll/DuoLab test instructions (metal drum)	**DIN EN 12642 Annex B** 3 x full brakings with 0.8g and Cornering

4. Test object

216.5 l / 55 gal. metal bung drums / standard roll-on corrugated drums and 200 l L-ring PE drums "with RH material μ > 0.6 (drum/pallet), marking: UN 1A1/Y (may be different - the certificate refers to the standard drum container dimensions).
LE formation: PES strap, sewn with tear strength > 2,500 daN, vertically with PET strap 2 pieces, centered, 15.5 mm x 0.9 mm (or equivalent/higher quality), pre-tensioned with at least 100 daN, (strapping linear tear strength > 430 daN, < 11% elongation), note the position of the straps! Position the LE in the direction of travel with the shortest strap path between the drum and pallet. The use of PET straps must be ensured by means of instruction. The pallets must always be positioned positively at the contact points (wooden pallets).
Alternatively, woven polyester fabric tape can also be used for vertical tensioning with and without metal hooks. The measurement recording of the dynamic driving tests from 24.02.2025 is available from EUROSAFE GmbH (Fig. 3-4).
Pallet design: CP 2, 80 x 120 cm.
Total weight pallet: approx. 26 kg, weight drum:/full approx. 208 kg (steel), 204 kg (PE drum).

5. Result:

The loading unit is sufficiently stable in accordance with EUMOS 40509 and DIN 55415.

6. Design of the load unit formation

Fig. 1 and 2: Metal drum with PET strap and PE drum with polyester strap and metal hook fixation

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Fig. 3 and 4: Metal hooks

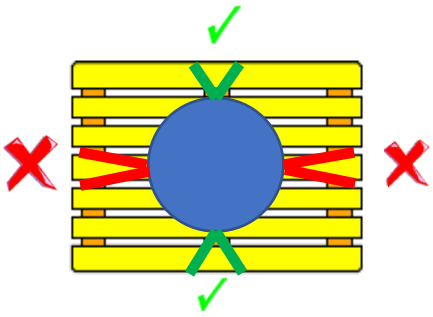
7. Supplementary notes

Ensure that the PET straps are attached correctly as shown in the pictures/sketch. The drum remains in its starting position even after being loaded 3 times with 0.8 g. It is important that the angle of inclination of the PET strap between the drum and pallet is kept as large as possible. For PE drum securing, friction-enhancing materials with a certified RH value of ≥ 0.6 µ must always be used between the drum and the wooden pallet. The load units must always be stowed/positioned form-fit to the end wall, to the pallet stop bar or to adjacent pallets. If there are restrictions to the aforementioned requirements, the load unit must also be secured by lashing down. Loading units with damaged strap material or with limited pre-tensioning must not be loaded and transported. Further data can be found in the laboratory test report: KA59909.

When using the metal hooks, the PE drum was offset by 1 cm. No misalignment could be detected on the metal drum. The metal hook was not deformed in any way. The metal hook can be reused after visual inspection.

Correct attachment of the PET ☑
The offset was max. 1 cm after 3 x horizontal impact 0.8 g

Incorrect attachment of the PET straps ☒
The offset was < 6 cm after 3 x horizontal impact 0.8 g



Checker **Overall system:**	EUROSAFE GmbH, Wolfgang Neumann, personally certified expert according to DIN EN ISO/IEC 17024:2012 for road, rail and sea transport (including dangerous goods) for load securing, packaging and load unit formation	**Examiner number:**	ZN-20120507-0253 08/2027
Signature / Stamp:	Verpackung und Ladungssicherung Euro Zert Certification Überwacht durch: SVG Euro-Zert GmbH Wolfgang Neumann DIN EN ISO/IEC 17024:2012 ZN-2012-05-07-0253 Gültig bis 08/2027 Personenzertifizierter Sachverständiger	**Exhibition venue:** Am Germanenring 30 63486 Bruchköbel Date of Issue of Certificate: 27.03.2025	