Case study

World's First EUMOS 40509 Certification at 0.6 g for Plastic Resin Pallets.

Powered by Selene solutions:
FFS Tubular Film and Stretch Hood
for ultimate load stability.



CHALLENGE

In road freight transport, load securing is critical to prevent accidents, cargo damage, and regulatory non-compliance.

With the implementation of **Directive 2014/47/EU** (a binding European regulation governing roadside technical inspections of commercial vehicles) and the **EUMOS 40509** standard (European Safe Logistics Association), proper load restraint has become a key requirement for road safety across Europe.

Current legislation requires that loads withstand accelerations of **0.8·W (m·g) forward** and **0.5·W (m·g) sideways and backward**. However, the market increasingly demands more robust solutions to minimize risks, reduce costs, and ensure compliance in highly regulated regions such as **Flanders, Wallonia,** and **Brussels**.

OBJECTIVE

Certify a plastic resin pallet (**CPChem Marlex® polyethylene line**) at **0.6 g lateral acceleration**, exceeding the minimum standard (0.5 g) and setting a new benchmark for load safety.

SOLUTION

Selene, in collaboration with **Chevron Phillips Chemical** (CPChem), **CS-TS Logistic Lab**, and **Katoen Natie** (KTN) **Bulk Terminal Antwerp**, conducted a series of rigorous tests to validate pallet stability under demanding conditions.

This achievement was made possible thanks to Selene's packaging solutions:

- **FFS tubular film** for secure packaging of plastic resins.
- **Stretch Hood** to ensure maximum pallet stability.

CPChem Marlex® polyethylene pallets were tested in accordance with **EUMOS 40509** standards, with lateral acceleration tests performed at 0.6 g, exceeding the regulatory minimum of 0.5 g. Official certification was issued by **CS-TS Logistic Lab**, marking the **world's first EUMOS 40509 certification at 0.6 g for plastic resin pallets**.

RESULTS

First worldwide EUMOS 40509 certification at 0.6 g for CPChem Marlex® polyethylene pallets.

Full compliance with **Directive 2014/47/EU** and European regulations already enforced in Belgium.

Strategic partnership between **Selene, CPChem, CS-TS, and KTN** to strengthen supply chain safety standards.

TECHNICAL AND OPERATIONAL BENEFITS

+20%

GREATER SAFETY MARGIN (+20%)
FROM 0.5 g TO 0.6 g → +10 kN OF FORCE FOR A 10 t LOAD.

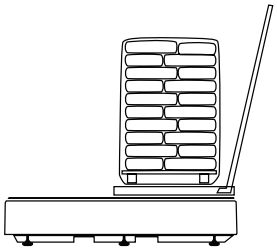
ENHANCED CORPORATE RISK PROFILE
FEWER FUTURE INSPECTIONS.

LOWER RISK OF SEVERE DEFICIENCIES
DURING ROADSIDE INSPECTIONS.

COMPLIANCE WITH TECHNICAL STANDARDS
EN 12195-1, EN 12642, EUMOS.

REDUCED IMMOBILIZATION AND DELAYS
FEWER STOPS, IMPROVED DELIVERY PUNCTUALITY.

FEWER SECURING DEVICES
REDUCED USE OF STRAPS/CHAINS, SAVING TIME AND COSTS DURING LOADING/UNLOADING, IMPROVED ERGONOMICS.



IN SHORT

- 0.5 g = EU minimum; **0.6 g = best practice with +20% margin.**
- **Benefits:** higher safety, fewer non-compliances, fewer stops, improved risk profile, operational time/cost savings, stronger compliance with technical standards and market expectations.

PRACTICAL EXAMPLE – STANDARD PALLET

Consider a pallet weighing 1,375 Kg:

Weight (W) = m · g = 1,375 kg × 9.81 m/s² = **13,490 N** (≈ 13.49 kN).

EU minimum requirement:
Forward: 0.8·W = 0.8 × 13.49 kN = 10.8 kN
Sideways: 0.5·W = 0.5 × 13.49 kN = 6.75 kN

EUMOS test at 0.6 g:
Lateral acceleration = 0.6 × 9.81 = 5.9 m/s²
Applied force = m × a = 1,375 × 5.9 = 8.11 kN

Result: the **0.6 g test provides a +20% safety margin** compared to the minimum requirement (6.75 kN → 8.11 kN).

Data from tests performed by or on behalf of Selene S.p.A. and Chevron Phillips Chemical. Results refer to the specific test conditions, load configuration, packaging materials, and pallet type evaluated. Designed to support compliance with EU load-stability standards. Actual performance may vary depending on transport conditions, handling practices, and load characteristics.

Testing was conducted in collaboration with Chevron Phillips Chemical. References to CPChem do not constitute an endorsement of Selene products or services.