CEPI EUROKRAFT
European Producers of Sack Kraft Paper and Kraft Paper

Fact Sheet 2

Cement losses in filling and handling from paper sacks and WPP sacks

The results in this fact sheet refer only to these lab tests and to the conditions during the period of tests.

Study overview

CEPI Eurokraft conducted a lab test to investigate cement losses during the filling operation and subsequent handling of WPP sacks and paper sacks. The test was performed alongside the 50 kg cement filling speed study at the Billerud Packaging Development Center in Karlsborg, Sweden. The cement used was Portland cement from Heidelberg Materials in Slite, Sweden, with a density of 1.4 kg/l and a Blaine value of 4,132 cm²/g. Note, paper is suited also for higher cement Blaine values.

Packaging specifications

Specifications	Paper sack	WPP sack
Material:	2 plies high-porous paper: inner ply 80 gsm brown, outer ply 90 gsm white	63 gsm PP 22 gsm PP lamination
Air escaping system:	Unperforated	Perforated
Type:	Flush cut valve sack	Flush cut valve sack
Length x Width (mm):	630 x 500	630 x 500
Top/Bottom width (mm):	110	110
Volume (l):	35,8	35,8
Air flow test (Mega Gurley) at 50 mBar (Nm3/h):	125	90

Test methodology

- Five sacks per packaging type were filled with 50 kg cement.
- Cement losses during filling were measured by placing a white paper sheet under the filling equipment and weighing the collected cement particles.
- To simulate real-life handling conditions after the filling process, each packaging went through five drop tests from 90 cm height, and comparing each sack weight before and after testing ensured accurate results.

Key results

- Cement losses during filling of WPP sacks are 4 times higher compared to the filling of paper sacks. However, the cement losses around the filling equipment are normally taken back to production.
- Cement losses in the handling of filled WPP sacks are 4 times higher compared to the handling of filled paper sacks. These losses are normally not taken back to production, since this happen in the distribution value chain.

CEPI EUROKRAFT
European Producers of Sack Kraft Paper and Kraft Paper

- 172 tonnes cement per million tonnes of produced cement is getting lost via WPP sacks and 44 tonnes cement per million tonnes of produced cement is getting lost via paper sacks according to the study.
- By using paper sacks, a saving of 128 tonnes cement per million tonnes of produced cement would occur.
- Cement production is a fossil greenhouse gas (GHG) emission intensive industry, this saving can also be translated into a saving of 104 tonnes CO2e per million tonnes of produced cement.

WPP sack after one drop test from 90 cm height.

Paper sack after one drop test from 90 cm height.

Key findings

Cement losses at the filling site **increase maintenance costs**, downtime for **cleaning**, and **reduce equipment lifespan**.	**Higher cement losses contribute to health and safety risks** for employees.	The **WPP sack creates losses from** both **perforations and the woven surface**, leading to inefficiencies.	**Reduced product loss improves overall efficiency and reduces environmental** (fossil GHG emissions) **impact**.

Conclusion

The study demonstrates that **paper sacks significantly reduce cement losses compared to WPP sacks**, resulting in **cleaner operations**, **lower maintenance costs**, and **improved efficiency** throughout the distribution supply chain.

The lab test report is available on CEPI Eurokraft website: www.cepi-eurokraft.org
Publication date: April 2025

For more information, contact your sack kraft paper producer or CEPI Eurokraft secretariat.

CEPI Eurokraft would like to thank the members of the working group responsible for generating these insights:

Valdemar Forsblom - Billerud I Indrajit Sen - Canadian Kraft Paper I Michael Doucette - Canfor I Jean-Eric Gancille - Gascogne Papier I Alexander Fink - Mondi I Sejo Mulalic - Natron-Hayat I Pia Dahlén - Nordic Paper I Peru Valdes - Smurfit Westrock I

CEPI Eurokraft is the European Association for Producers of Sack Kraft Paper for the Paper Sack Industry and Kraft Paper for the Packaging Industry.
It has ten member companies representing a volume of 3 million tonnes of paper produced in eleven countries. www.cepi-eurokraft.org

Billerud I Gascogne Papier I MM Board & Paper I Mondi I Natron-Hayat I Nordic Paper I Smurfit Westrock I Starkraft I SwedPaper I The Navigator Company I