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Date
November 12th 2014
Your ref.
Unipak paksalve
Our ref.
392-2014-00259801/MKR

Evaluation of Unipak Jointing Compound

Eurofins Product Testing has received a request from Unipak A/S to conduct an evaluation of Unipak Jointing Compound in relation to the Danish legislation on materials for contact with drinking water.

Products for contact with drinking water must comply with the requirements of the Danish Energy Agency as described in executive order no. 31 of 21/01/2013 and executive order no. 1259 of 05/11/2013. The Secretariacy for Godkendt til Drikkevand has however concretized that products with only a marginal contact area – as for instance jointing compounds – are not covered by the legislation.

An assessment of the full chemical composition of the jointing compound has however been conducted according to the rules for products for contact with drinking water. The aim was to evaluate whether the jointing compound complies with the requirements set up in the legislation.

The chemical components in the jointing compound have been assessed according to the same criteria as if the product was covered by the legislation on products for contact with drinking water. All substances in the jointing compound are either approved for use directly in food or in food contact materials without specific restrictions. Subsequently an analysis of the jointing compound was conducted based on the same criteria as if the jointing compound was covered by the legislation on materials for contact with drinking water.

The results of the analysis lie well below the limit values as given in executive order no. 31 of 21/01/2013 and executive order no. 1259 of 05/11/2013. Thus the background documentation needed for an approval is made available for the jointing compound. Since the product is not covered by the requirements set up in the legislation an official approval cannot be granted for the product. From a toxicological viewpoint the jointing compound complies with the requirements given in executive order no. 31 of 21/01/2013 and executive order no. 1259 of 05/11/2013.

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Date: 17-10-2014

Your ref.:

Our ref.: 392-2014-00186001

Analytical report – Migration Test

1 Sample Information

Location/ Identification	Migration according to EN 12873-1 on filter material for water supply systems, for the evaluation of conformity to GDV requirements.
Sample receipt	5 September 2014
Number / type	One sample of jointing compound marked with the numbers: Lab no. 392-2014-00186001: Unipak
Number of items used for migration	1
Analytical period	17-09-2014 – 3-10-2014

2 Applied methods

Method no	Principle	Parameter	Limit of detection	Uncertainty ①
DS/EN ISO 7027$^{\Delta}$	Transparency measurement	Turbidity	0.1 FTU	20%
DS/EN 14402 $^{\Delta}$	Extraction and spectrofotometric measurement of phenolic compounds.	Phenoles	0.5 µg/l	20%
DS/EN 1484 $^{\Delta}$	Organic compounds are degraded to CO_2. The amount of CO_2 is measured by NIR technique	VOC/NVOC	0.1 mg/l	20%
DS/EN ISO 6271-2 $^{\Delta}$	Spectrophotometric determination by the platinum-cobalt scale	Colour	1 mgPt/l	20%
Internal $^{\Delta}$	GC/MS determination	PAH	0.01 µg/l	
DS/EN 1420- 1 + DS/EN 1622 *	Triangel test where a test panel evaluates the smell and the taste of the exposed water to a reference sample	TON (smell) and TFN (taste)	Marking scale for TON and TFN assessment	0: No- 1: Just noticeable- 2: weak- 3: Distinct- 4: Strong deviation

The jointing compound is migrated according to EN 12873-1 (equivalent to ISO 1420-1). The jointing compound is applied to a small glass plate. The ratio of sample to water migration volume was 0.5-1 g pr. 500 ml water. The glass plate with applied sample is put in a glass beaker and rinsed by flushing with tap-water for 1 hour, stagnated with tap water for 24 hours and flushed again with tap water for 1 hour, and finally rinsed with demineralised water.

The migration is then performed with demineralised water for 72 hours at 23°C for the chemical testing methods and with tap water for the evaluation of smell and taste.

The water from the 1st and 3rd migration was tested for the parameters mentioned above.

① U_m (%): The expanded uncertainty U_m is equal to 2 x RSD%, see also www.eurofins.dk. Keyword: Uncertainty.
* Not a part of our accreditation
$^{\Delta}$ Analysed by Eurofins Miljø A/S accredited by Danak under Reg. nr. 168.

3 Evaluation of the Results

The test results from the migration of the jointing compound are summarised in table 1 and the analytical results of smell and taste are presented in section 0.

Table 1: Test results of the migration according to EN 12873-1.

Parameter	1st migration	3rd migration	Limit
NVOC	-	< 0.1 mg/l	1.5 mg/l
Phenol index	< 1 µg/l	< 1 µg/l	No detection
Turbidity	-	< 0.1 FTU	No changes compared to blind
Colour	-	< 1 mg Pt/l	No changes compared to blind
Smell and taste	-	No significant changes	No significant changes compared to blind
PAH	-	< 0.01 µg/l	

< Means less than the limit of detection

The migration of chemical substances from the jointing compound and their influence on taste and smell **complies** with the requirement given in in Executive Act no. 31 of 21/01/2013 as amended on approval of construction material in contact with drinking water.

Janne R. Norup
Chemist

John Hansen
MSc, Chemistry

4 Results

Table 2: Results of sensory evaluation of smell (TON) and taste (TFN)

TON and TFN	
Number of assessors	10
Assessments in total TON/TFN	30/30
TON	< 1
Correct assessments Odour (TON)	10/10
No perceived difference obtained by	90 %
Significance Odour	ns
TFN	< 1
Correct assessments Flavor	8/10
No perceived difference obtained by	63 %
Significance Flavor	ns
Mark of correct assessment Odour	0.06 (± 0.16)
Mark in total Odour	0.05 (± 0.16)
Mark of correct assessment Flavor (TFN)	0.25 (± 0.38)
Mark in total Flavor (TFN)	0.40 (± 0.46)

ns: non significance, *: significance of 5% level.

5 Picture of sample