



ETA evaluation report of Sealection[®] Agribalance spray foam insulation

Requested by: IsoGreen Industries AB



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Order ETA-request May 31, 2013, Ronald Kershaw

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Task Sealection Agribalance® two component open cell, spray applied, semi-rigid polyurethane foam

Summary This report describes the technical basis for issuing an ETA for Sealection Agribalance spray foam insulation

The report contains a summary of relevant test reports in order to work out the ETA. The assessments are based on CUAP, ETA request No 12.01/02, Revision 2 October 2009, Thermal insulation material and/or acoustic insulation material made of vegetable fibres was applied.

The product is intended to be used in walls, floors and ceilings as thermal and acoustic insulation. The insulation can be used in constructions where it is not exposed to wetting, weathering, heavy moisture transport, condensation or long term compression.

Performed tests The type tests and assessments were conducted from samples taken from production and sprayed into insulation in the presence of the third party. The test program is described in the table 1.

Table 1. Test program of Sealection Agribalance insulation

CUAP Paragraph/Property	Test method	Report
2.4.1 Corrosion developing capacity	CUAP 12.01/21 annex C	VTT-S-03578-13 May 21, 2013
2.4.2 Reaction to fire Foam material	EN ISO 11925-2	(Not tested)
2.4.3 Dangerous substances Release of dangerous substances	Manufacturers declaration	Manufacturers declaration



2.4.4 Short term water absorption	EN 1609, method A	VTT-S-03578-13 May 21, 2013
2.4.5 Water vapour permeability	EN 12086	VTT-S-03578-13 May 21, 2013
2.4.6 Mould growth test	CUAP 12.01/21 Annex B, EN ISO 846	VTT-CR-03349-13 May 15, 2013
2.4.7 Sound insulation Compressibility Dynamic stiffness	EN 12431 EN 29052-1	VTT-S-03734-13 May 27, 2013 VTT-S-03768-13 May 28, 2013
2.4.8 Thermal conductivity, λ_{10} Lamda declared, $\lambda_{DECLARED}$	EN 12667 EN ISO 10456	VTT-S-03734-13 May 27, 2013 VTT-S-03744-13 May 27, 2013
2.4.9 Compression strength;	EN 826	VTT-S-03734-13 May 27, 2013
2.4.10 Tensile strength parallel to faces	EN 1608	VTT-S-03734-13 May 27, 2013
2.4.11 Tensile strength perpendicular to faces	EN 1607	VTT-S-03734-13 May 27, 2013
2.4.12 Dimensional stability, 48 h(+70 °C, 90 % RH), (length, width, thickness) 48 h(+23 °C, 75 % RH), (length, width, thickness) 48 h(-20 °C) (length, width, thickness)	EN 1604 EN 1603, Method A EN 1604	VTT-S-03734-13 May 27, 2013
Density	EN 1602	VTT-S-03734-13 May 27, 2013

Results and evaluation

Table 2. Summary of the test results and evaluations

Property	Unit	Results
Thermal conductivity, λ_{10} , EN 12667	W/mK	0,0373 (av. density 9,2 kg/m ³)
Lamda declared, $\lambda_{\text{DECLARED}}$, EN ISO 10456	W/mK	0,039
Short term water absorption, EN 1609	kg/m ²	2,64
Water vapour permeability, EN 12086 μ	kg/msPa -	3,18 x 10 ⁻¹¹ 6,11
Release of dangerous substances	Manufacturers declaration	Manufacturers declaration
Compressive strength; EN 826	kPa	11,2
Tensile strength parallel to faces, EN 1607	kPa	11,5
Tensile strength parallel to faces EN 1608	kPa	11,3
Reaction to fire, foam material EN ISO 11925-2	-	F (not measured)
Density, EN 1602	kg/m ³	10,8 – 12,6 (Mean 12,0)
Dimensional stability (length/width/thickness) +70 °C, 90 %RH, 48 h, EN 1604 +23 °C, 75 % RH, 48 h, EN 1603 - 20 °C, 48 h, EN 1604	% % %	+ 0,27/+ 0,20/+ 0,97 No changes of flatness were found - 0,02/- 0,01/- 0,01
Corrosion developing capacity, CUAP annex C		No pits (perforations) were observed on the copper sheets. Several (15 pcs) pits of Ø 1.0 – 7.0 mm and several smaller (68 pcs) pits and very small (15 pcs) pits were observed on the sheet of zinc, Za1. Several (15 pcs) pits of Ø 1.0 – 7.0 mm and several smaller (40 pcs) pits and very small (30 pcs) pits were observed on the sheet of zinc, Za2.
Dynamic stiffness, EN 29052-1	MN/m ³	Avg 9 (density c. 13,4 kg/m ³)
Compressibility, EN 12431	%	9,2 (density _{mean} 12,0 kg/m ³)
Working life (Mould test), CUAP Annex B, EN ISO 846	0= no growth under the microscope	Rating 0 (without spore addition) and rating 0 (with spore addition)

Conclusions

According to the test and evaluation results Sealection Agribalance thermal insulation has tested and evaluated according to the CUAP 12.01/21 “Soft foam insulation” with one exception: Dimensional stability has been done according to EN 1604.

Test according to EN 1605 has not been included because the products there is restriction that in the end use conditions there shall not be any long term compression directed into insulation.

Espoo, June 30, 2013



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