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CONSULTANCY

REPORT:

Leachability by rainwater of a PVC roofing membrane

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Appendices: 3 (report 17/02527 and Appendix 2.3.1 Vlaem II and reports
E17-009198 and 17-14938)



1 Purpose

The client Renolit NV of Oudenaarde wishes to find out the release in contact with rainwater of foreign or unwanted substances from a PVC roofing membrane.

2 Methodology

A representative sample of the PVC roofing membrane with a total area of 0.2 m² (50x20 cm - 2 sides) was freely suspended in 8 litres of rainwater (originating from Hasselt) and was leached for 24h while subjected to slight agitation (t° 18°C

- The test was performed in a 10 litre polyethylene container that have been thoroughly cleaned beforehand and rinsed several times with the rainwater.
- After completion of the test (24h), the required tests were carried out both on the exposed rainwater and the unused rainwater.

The parameters to be tested were selected on the basis of both relevance (which substances could potentially be released from the membrane) and the parameters in Appendix 2.3.1 of Vlare II.

3 Results

The analysis results both for the unused rainwater and the leachate rainwater are recorded in report 17/02527 in Appendix 1;

The outsourced tests are reported in report E17-009198 and 17-14938 (Appendix 2). The test values of Appendix 2.3.1 are shown in Appendix 3.

4 Discussion of the results

- The pH value is high for rainwater because this rainwater comes partly from a concrete rain cistern (free lime) and is partly freshly captured from a copper rain downpipe (forecast pH approx. 5). Since rainwater is not buffered very long, the slightest trace of 'lime' leads to an increase in pH.
- The leached rainwater exhibits a slight but not significant increase in the level of magnesium, calcium, chlorides and zinc.
For a number of parameters, even a slight fall was observed. (silver, tot.mercury, nitrate, copper, lead, silver). The cause of this reduction is, in our opinion, due to sorption on the foil or the container wall.
- The 'fluctuations' are neither significant nor relevant for most parameters, taking account of the measurement uncertainty of the results!
- The groups of organic substances 'organohalogen compounds', measured for the parameter AOX and softeners, measured as phthalate esters, display no measurement increase.

- - The salt content (electrical conductivity) does not change in a notable way.

- - When the relevant parameters (= for which an increase was observed in the leaching test) were tested against the Environmental Quality Standards (MKN) for surface water (Appendix 2.3.1 Vlarem II), we found that none of the parameters exceeded the prescribed values.

5 Conclusion

During 24 h of continuous dynamic contact between the Renolit PVC roofing membrane made available and rainwater, no notable increases in concentration were observed in general, inorganic or organic components. In any case, the slight increases do not result in the basic environmental quality standards being exceeded.

(EQS/classification criteria ES Appendix 2.3.1 Vlarem II).

It is rather important to point out that this test is a simulation of natural leaching behaviour and that the measurement values found only give an indication of an effect to be anticipated. In reality, a parameter may reach a different value depending on the natural conditions (t°, sunlight, contact duration, ratio rainwater/membrane area, time factor)

The results (leachability) can also be expressed in/m² mg of foil



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