BDA Ponding Tester ®

The BDA Ponding Tester®, type N, has been developed on the basis of EN 1297:2004 – Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Method of artificial ageing by long term exposure to the combination of UV radiation, elevated temperature and water.

About the BDA Ponding Tester

The BDA Ponding Tester®, type N, has been developed on the basis of our experiences with the first (proto)types. With these machines we now have experience of about thirty years. Several laboratories use this type. The BDA Ponding Tester®, type N, has been developed on the basis of EN 1297:2004 – Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Method of artificial ageing by long term exposure to the combination of UV radiation, elevated temperature and water. This standard prescribes a test cycle of 5 hours 60 °C UV-A and 1 hour of spraying water. During the spraying cycle the test chamber in the apparatus is not heated. We have had the opportunity to co-operate with the draft of this standard. This also implies that the BDA Ponding Tester® fulfils the specifications mentioned in EN 1297. The water spraying option can easily be switched off; the BDA Ponding Tester then operates according to EN 13859-1 (-2) for testing underlays.

Test cycle

The test cycle recommended by Kiwa BDA Testing B.V. is according to the expired draft standard prEN 1297-1:1994 – Flexible sheets for roofing - Determination of resistance to UV and water ageing, Part 1 - Bitumen Sheeting. This cycle consists of 4 hours 70 °C UV-B and 4 hours condensation at 40 °C and ponding water (over approximately 50% of the width) and is very aggressive. During the UV-cycle the water evaporates partly, which means that the water-air borderline is moving over about 50 mm of the sample. From American calculations and our own correlation investigations one could conclude that 1000 hours in our machine equals about five years on a flat roof in Western European climate. Of course this can only be a rough indication, since the real

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correlation also depends on the type of material, the thickness, and the climate differences within Western Europe. Therefore, this correlation may not be used for official statements about lifetime expectancy.

Advantages

The advantages of the BDA Ponding Tester® versus other equipment can be summarised as follows:

- Relatively, very fast and aggressive weathering method, that specially by the ponding water concept equals very well with what is actually happening on a roof.
- The ponding water effect can be switched of, which makes it possible to test materials for flat roofs as well as for sloped roofs and façades.
- It is possible to test relatively large samples. The maximum dimensions are 300 mm H 1100 mm. Within these maximal dimensions one is free to choose the dimensions of the sample. It is therefore also possible to test a large number of small samples at the same time. Furthermore there is the opportunity to perform tests on relatively large test specimens after ageing.
- The machine is not only relatively cheap to purchase, but also very economic in maintenance. According to our experience, the average costs for electricity and lamps is about € 300,-- per month at full time service.

Dimensions

The approximate dimensions are (l x w x h) = 1,5 m x 1,2 m x 0,8 m. The equipment stands on a table and shall be accessible from all directions. 220/230 V with 50 Hz electrical supply is needed.

References

- NEN-EN 1297:2004
- NEN-EN 13859-1
- NEN-EN 13859-2

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