

# Coremat heat resistance

## Introduction

Processes and end users may use Coremat (laminates) in situations where the Coremat is exposed to heat. This can already occur during processing. The peak exotherm of the resin may lead to heat exposure of Coremat and the laminate may be post cured under high temperatures. In the further processing of Coremat there may also be heat exposure, for instance in paint shops or in application of the product.

## Tests

In general Lantor B.V. advises for Coremat laminates generally the following:

1. For exposure up to 1 hour temperatures of 140 °C (291 °F) are allowed
2. For longer exposure the temperature should be limited to 90 °C (194 °F)

These are safe values for exposition. The microspheres are the limiting factor in Coremat. Up to three months after production the microspheres may contain traces of blowing agent, which will expand when Coremat is exposed to elevated temperatures. After three months the expanding agent should have left the material.

The following describes test results of heat resistance of Coremat laminates.

### 1. Temperature test at 120 °C (248 °F)

Laminates containing Coremat were exposed to 120 °C in an oven during 12 hours. Before and after (mechanical) properties of the laminates were measured (weight, thickness, density, Young's modulus, bending strength, bending moment at failure, Shore hardness).

Laminate build up:

- 300 g/m<sup>2</sup> CSM
- Coremat XX 4 mm
- 300 g/m<sup>2</sup> CSM

Laminates were made with Palatal P8 resin. Laminates were cured during 4 hours at 80 °C (176 °F).

The laminates which had been exposed to 120 °C during 12 hours did not show a significant change in properties. The colour of the resin had become slightly darker.

### 2. Temperature test at 130 °C (266 °F), 150 °C (302 °F), 170 °C (338 °F)

Laminates containing 2 and 4 mm Coremat XX were exposed in an oven to 130 °C, 150 °C, 170 °C during 30 minutes.

Lantor visually inspected the laminates after exposure. The laminates which had been exposed to 130 °C and 150 °C did not show any delamination or blistering. The laminates which had been exposed to 170 °C did show delamination. The colour of the Coremat had turned from white to brown.

## Conclusion

Coremat material and laminates can be used on elevated temperatures. However there are restrictions in the temperature. Lantor B.V. advises the following:

1. For exposure up to 1 hour temperatures of 140 °C (291 °F) are allowed
2. For longer exposure the temperature should be limited to 90 °C (194 °F)

For further questions about Lantor Coremat, technical support and sample materials, please contact Lantor B.V. or your local distributor.

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