



Yes, you can.

Understanding Berlin Cert's Testing for Pressure Cushions

Propad® range

Knowledge Bank No:96

Berlin Cert is a renowned certification body in Germany that plays a pivotal role in evaluating and certifying the quality of support surfaces, particularly focusing on their pressure redistributing, shear-reduction and microclimate properties. These evaluations are of paramount importance, especially in healthcare settings, where the prevention of pressure injuries is a critical concern.



Classification of Pressure Cushions

Berlin Cert employs a rigorous classification system to assess and categorise cushions based on their pressure redistributing properties. This classification system helps healthcare providers, and manufacturers make informed decisions about which cushions are most suitable for specific needs.



Category H
High Pressure Relief

Cushions in this category offer exceptional pressure relief. They are designed to distribute the body weight evenly, significantly reducing the risk of pressure injuries. It is being quantified by pressure redistributing properties that are over 20% better than the benchmark cushion used in the test.



Category D
Average Pressure Relief

Cushions in this category provide effective pressure relief and are suitable for a wide range of patients. It is being quantified by pressure redistributing properties that are between 10% and 20% better than the benchmark cushion used in the test.



Category G
Low Pressure Relief

Cushions in this category offer moderate pressure relief and are being quantified by pressure redistributing properties that are equal or up to 10% better than the benchmark cushion used in the test.



Category K
No Pressure Relief

Cushions in this category provide minimal pressure relief and are equal to or show pressure relief less than the benchmark cushion used in the test.

The Berlin Cert testing is done with a predefined weight category: the average patient weight of 80 kg.

Clinical Relevance for Pressure Injury Prevention

The clinical relevance of Berlin Cert's cushion classification system lies in its potential to significantly impact patient outcomes in healthcare settings. Pressure injuries are a common and serious concern for patients who are immobile or have limited mobility, such as those in hospitals, long-term care facilities, or individuals with disabilities.

These injuries can result in pain, discomfort, extended hospital stays, and, in severe cases, life-threatening complications like infections.

Berlin Cert's classification system enables healthcare providers to compare cushions that are tested under similar conditions.

The healthcare provider has an independent reference to support and form part of the decision-making process.

Results Propad® Original

	Peak Pressure	Average Pressure
80 kg	42.3 mmHg	25.2 mmHg

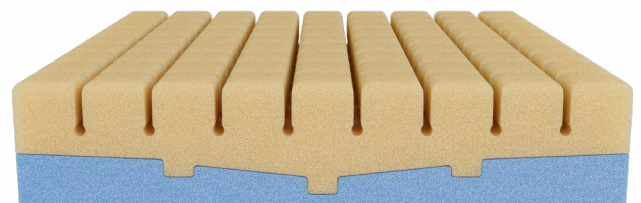
Classification @80kg
D



Results Propad® Premier

	Peak Pressure	Average Pressure
80 kg	46.7 mmHg	26.8 mmHg

Classification @80kg
D



Shear force Testing of Pressure Cushions

Berlin Cert also conducts shear force testing on cushions. This testing procedure helps assess various critical factors, including horizontal stiffness, coefficient of sliding friction, and coefficient of cohesive friction. These parameters play a pivotal role in determining the clinical relevance of cushions for pressure injury prevention.

- i. Horizontal Stiffness** refers to the ability of a cushion to resist deformation or sagging when subjected to lateral forces. During shear force testing, a specialised apparatus applies horizontal forces to the cushion surface. The resulting data helps evaluate how well the cushion maintains its shape under pressure. A cushion with higher horizontal stiffness can provide better support and comfort to patients, reducing the risk of pressure injuries.
- ii. The Coefficient of Sliding Friction** measures the ease with which a patient can slide or reposition themselves on the cushion. Lower friction coefficients indicate a smoother surface, making it easier for patients to adjust their position. This is crucial for patients with limited mobility, as it reduces the risk of shear-related injuries and improves overall comfort. A cushion with a lower coefficient of sliding friction can contribute significantly to pressure injury prevention by minimising shear forces during patient movements.
- iii. The Coefficient of Cohesive Friction** measures the resistance to horizontal movement between the patient's skin and the cushion surface. High cohesive friction can lead to skin shearing and frictional forces, which are primary factors contributing to pressure injuries. Lower cohesive friction values indicate that the cushion surface is less likely to cause skin abrasion and damage. Cushions with a lower coefficient of cohesive friction are particularly valuable in preventing pressure injuries, as they reduce the risk of skin damage when patients shift positions or are repositioned.

Clinical Relevance for Pressure Injury Prevention

Pressure injuries are a significant concern in healthcare, particularly for individuals who have limited mobility. Shear force testing of cushions is essential because it directly addresses factors that influence the development of pressure injuries.

Horizontal stiffness, the coefficient of sliding friction, and the coefficient of cohesive friction are important indirect indicators of shear forces. Cushions that perform well in these tests are more likely to provide adequate support, reduce shear forces, and minimise the risk of pressure injuries.

Product name	Horizontal Stiffness	Coefficient of Sliding friction	Coefficient of Cohesive friction
Propad® Original	4.15 ± 0.20 N/mm	0.52 ± 0.01	0.56 ± 0.01
Propad® Premier	4.73 ± 0.20 N/mm	0.53 ± 0.01	0.56 ± 0.01

Microclimate Property Testing Classification

Berlin Cert utilizes a sophisticated classification system to assess the microclimate properties of pressure cushions. This classification is designed to guide healthcare professionals, and manufacturers in selecting cushions that effectively manage the microclimate, promote skin integrity and reduce the risk of pressure injuries.

Microclimate, in the context of pressure injuries, usually refers to skin temperature, moisture conditions, and airflow at the skin-support surface interface.



Category H
Excellent Microclimate Management

Cushions in this category demonstrate exceptional capabilities in managing the microclimate around the patient’s skin. They effectively regulate temperature and moisture, creating an environment that minimizes the risk of skin breakdown and pressure injuries.



Category D
Good Microclimate Management

Cushions in this category offer solid performance in microclimate management. While not reaching the pinnacle of excellence, they provide reliable temperature and moisture control, making them suitable for a broad range of users.



Category G
Moderate Microclimate Management

Cushions in this category provide satisfactory microclimate management, meeting basic standards for temperature and moisture regulation. They are appropriate for individuals with lower risk factors for pressure injuries.



Category K
Basic Microclimate Management

Cushions in this category have basic capabilities in microclimate management. While they may offer some level of comfort, they are not recommended for individuals at higher risk of pressure injuries who require more advanced microclimate control.

Description of the test structure

To simulate transpiration and heat supply, a transpiration model is used, where an evaporating chamber is coupled to the test piece via a porous plate (see Fig. 1). Distilled water is vaporised in the evaporating chamber so that the test piece is subjected to a defined amount of vapour through the membrane.

The heat supply to the chamber is set so that a temperature of $(33 \pm 1) ^\circ\text{C}$ is reached on the outer surface of the membrane. The complete simulation module is loaded with a total weight of 35 kg so that the compression corresponds to an average patient load. Additionally, the aid is loaded with a body model. The measurement of the humidity and the temperature are made with a combined temperature humidity sensor. The determined values are passed to a computer and are analysed there. The maximum measuring inaccuracy is, for the relative humidity, $\pm 1\%$ RH and, for the temperature, $\pm 0.3\text{ K}$ within the climate relevant for the measurement.

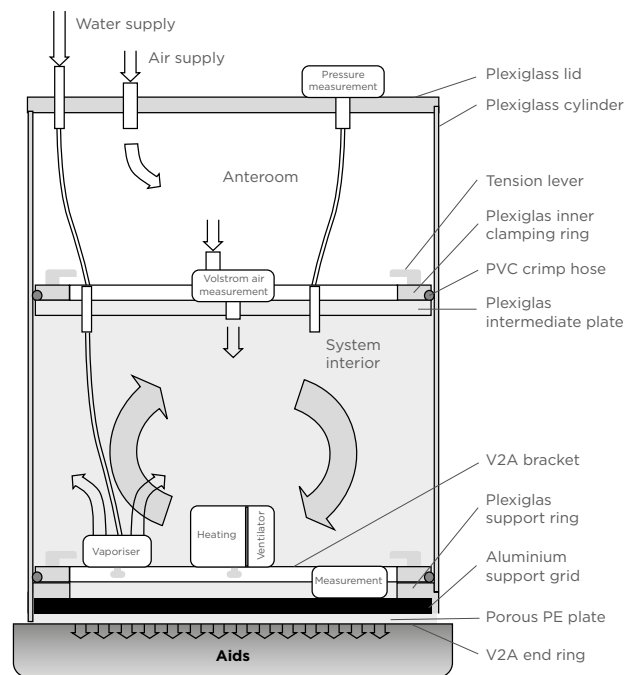


Fig. 1

Clinical Relevance for Pressure Injury Prevention

The microclimate around a patient's skin plays a pivotal role in preventing pressure injuries. It is one of the critical external factors of pressure injury development that needs to be considered when selecting cushions according to the EPUAP/NPIAP/PPPIA 2019 guidelines.

Berlin Cert's classification system holds significant clinical relevance in the following ways:

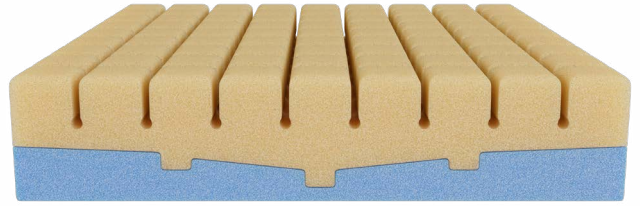
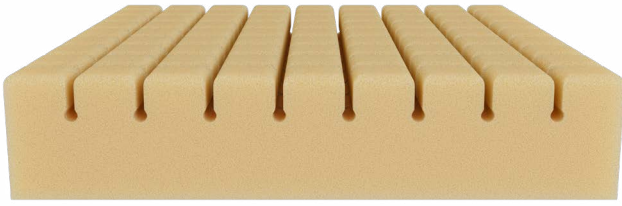
- 1. Skin Integrity Preservation:** Proper microclimate management helps maintain the skin's integrity by preventing excessive moisture buildup, which can contribute to skin breakdown. This is particularly crucial for individuals with limited mobility who may be prone to sweating or incontinence.
- 2. Temperature Regulation:** Effective temperature control contributes to patient comfort and reduces the risk of skin irritation. It is especially important for individuals who spend extended periods in bed or sitting, as improper temperature regulation can lead to discomfort and increased susceptibility to pressure injuries.
- 3. Prevention of Complications:** A well-regulated microclimate contributes to overall patient well-being and reduces the risk of complications such as dermatological issues. This, in turn, supports pressure injury prevention efforts.
- 4. Enhanced Patient Experience:** Considering microclimate management in cushion selection is highly recommended in the current EPUAP/NPIAP/PPPIA guidelines. By doing so healthcare providers can enhance the overall patient experience, contributing to improved satisfaction and adherence to care plans.

In conclusion, Berlin Cert's microclimate property testing and classification system for cushions address a critical aspect of pressure injury prevention.

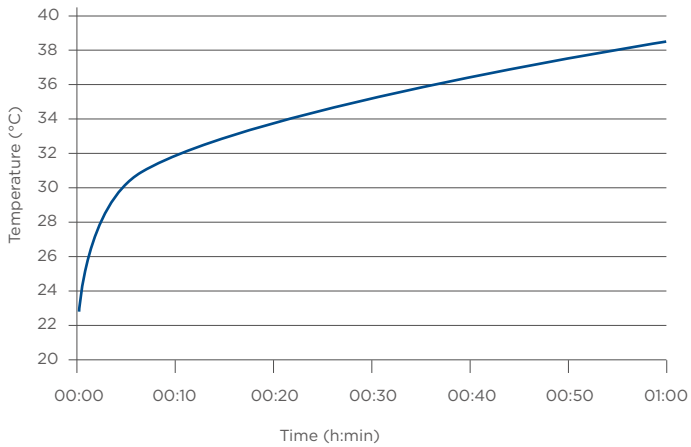
By guiding stakeholders in selecting cushions with optimal microclimate management, this testing contributes to maintaining skin health, reducing the risk of pressure injuries, and ultimately enhancing the quality of care provided.

Results Propad® Original

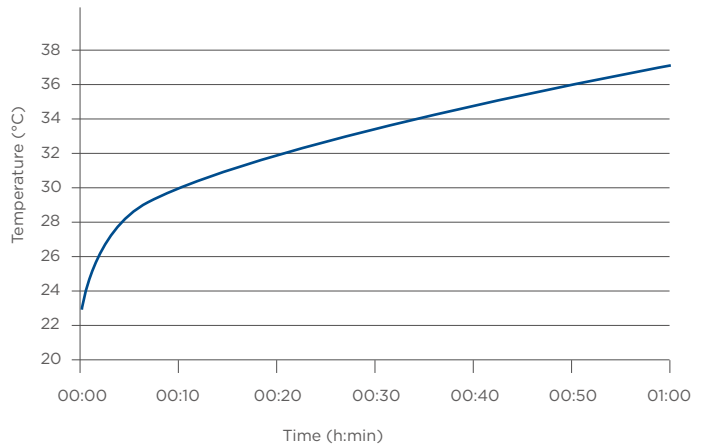
Results Propad® Premier



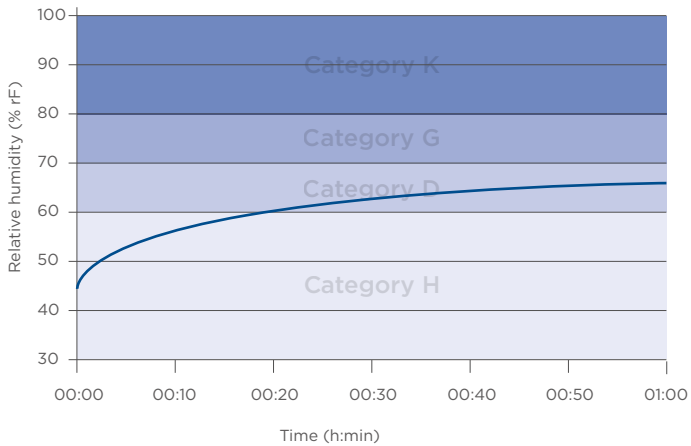
Temperature vs. time



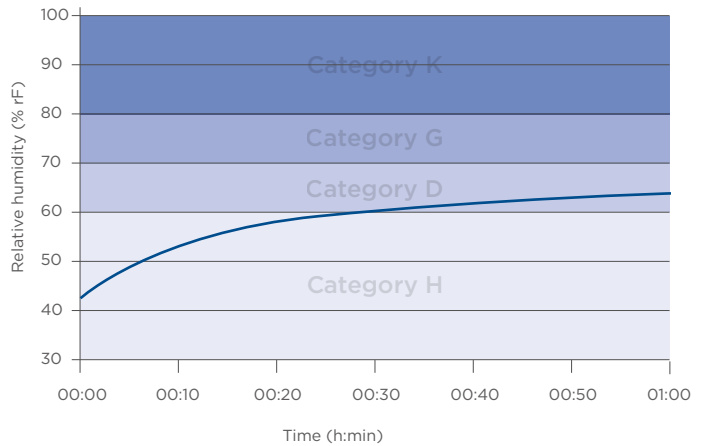
Temperature vs. time



Relative humidity vs. time



Relative humidity vs. time



The full reports

are available upon request.

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