



## ASSESSMENT OF SKIN COMPATIBILITY OF THE PELLEDACQUA BATHING SUIT

Textile contact dermatitis is a skin inflammation whose growing worldwide incidence is likely the result of the swift changes affecting the industry in recent years, both in terms of materials and of manufacturing processes. Although the condition is mostly common among textile workers, the number of standard fabric users suffering from contact dermatitis is also on the increase (Lisi P. et al, *Clinical and epidemiological features of textile contact dermatitis: An Italian multicentre study*, *Contact Dermatitis*, 2014, 70, 340-355).

Contact dermatitis or eczema may be caused by the type of fibre of which the fabric is made as well as its friction and rubbing properties, especially against dry or atopic skin: wool, fleece and synthetic fabrics made of coarse fibres can irritate the skin, while cotton is considered a more compatible option (Zhong W. et al, *Textiles and Human Skin, Microclimate, Cutaneous Reactions: An Overview Cutaneous and Ocular Toxicology*, 2006, 25 (1), 23-39).

The components of a given fabric or the garment finishes made with it may cause textile contact dermatitis (Malinauskiene L. et al, *Contact allergy from disperse dyes in textiles: A review*, *Contact Dermatitis* 2012, 68, 65-74; Ryberg K. et al, *Patch testing with a textile dye mix – A multicentre study*, *Contact dermatitis* 2014, 71, 215-223; Slodownik D. et al, *Textile allergy – The Melbourne experience*, *Contact Dermatitis* 2011, 65, 38-4; Warburton K.L. et al, *ESSCA results with the baseline series, 2009-2012: rubber allergens*, *Contact dermatitis* 2015).

Underwear, conventional bathing suits and socks are among the least skin-safe garments, as they are in direct contact with the skin and contain elastic finishes to fit tightly around the body. In addition, they are generally dyed and are often worn in conditions of high temperature and humidity.

Non-breathable fabric may obstruct the skin and irritate the stratum corneum, particularly when used in poorly aerated situations (e.g. wearing socks and trainers) or in wet hot environments (saunas, Turkish baths). Indeed, if the fabric does not allow proper transpiration, the water content of the stratum corneum increases, causing a maceration of the skin barrier which may result in skin inflammation. Albeit limited and not resulting in rashes or inflammation, the reduced transpiration provoked by fabric may still alter the stratum corneum

characteristics and facilitate the penetration of irritants and sensitizing substances contained in the fabric itself, such as the azo dyes and rubber accelerators found in socks, which are a common cause of contact dermatitis.

After examining the various skin conditions caused by fabrics and their components, it is therefore possible to infer that the main characteristics of an underwear garment or bathing suit with good skin compatibility are:

*Low friction properties*

*Absence of sensitizing dyes*

*Absence of rubber accelerators / Absence of elastic bands*

*High breathability*

The specific characteristics of the Pelledacqua bathing suit guarantee low friction with the skin. In addition, the product has no elastic bands and does not therefore cause sensitization to rubber accelerators, which are generally present in other bathing suits not designed for saunas.

The results of the tests carried out at a certified analysis laboratory have demonstrated that the Pelledacqua bathing suit offers high breathability and does not contain azo dyes which, as previously mentioned, often cause sensitization and textile contact dermatitis.

**From the analysis of scientific literature, the evaluation of the intrinsic characteristics of the product and the analytical data provided, we can therefore affirm that the Pelledacqua bathing suite for saunas offers good skin compatibility.**

On behalf of Unired S.r.l.

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