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Europe's Sunglass Standards High in Theory, Lower in Practice

Optometrists and health advocacy groups in Europe...

A hotter-than-usual summer in Europe is sending more people outdoors and into the sun, and though European Union-approved formulations for sunscreen are considered some of the best in the world, eye protection is another matter.

The label "CE" (Conformité Européenne) on a pair of sunglasses indicates compliance with EN 1836:1997, the European Union Personal Protective Equipment Directive, which dictates everything from polarization alignments to spherical and cylindrical power and UV transmittance.

Optometrists and health advocacy groups in Europe, such as the United Kingdom's Royal National Institute of Blind People, routinely emphasize the importance of seeking CE-certified glasses to protect eyes from a host of sun exposure-related disorders. "Sunglasses with a CE mark show that they are made to an agreed European standard ... [The mark] should be looked for when buying them," the [institute](#) suggests.

But as many as one-fifth of the sunglasses stamped "CE" do not actually meet the E.U. directive's standards, says Australian optometrist Stephen John Dain, Ph.D., who in April, along with colleagues at the University of New South Wales in Sydney, published results of tests on 646 "CE"-marked pairs from 42 different makers. Of these, 17% failed EN 1836, and 3% were "borderline" compliant (*Ophthalm. Physiol. Opt.* 2010 30: 253-256). The likeliest reason, Dr. Dain and colleagues found, was that while the E.U. standards are stringent and compliance is technically mandatory, no governing body has been tapped with holding manufacturers to the directive's standards.

"Self-declaration of compliance appears to be a very blunt instrument in providing appropriate sunglasses for the public," Dr. Dain and colleagues concluded in their analysis.

The researchers found that less than 2% of the sunglass failures they identified were related to excess UV transmission. UV exposure is the primary culprit in snow blindness, pterygium, photokeratitis, and some ocular cancers, and is a possible factor in age-related macular degeneration. But people buying noncompliant sunglasses could still be at risk of eye pain, headaches, and blurred vision, Dr. Dain said in an interview. The good news, he said, is that though it's easy to make eyes uncomfortable, "it's really hard to actually damage them." And there is no difference in protection afforded between a compliant pair of \$10 glasses and a compliant pair of \$400 glasses, he said.

But the glasses do have to actually be compliant, and it's not the first time Dr. Dain has wagged a finger at the CE mark for meaning less than it should. In 2003, Dr. Dain and his colleagues at the Optics and Radiometry Laboratory (part of the university's School of Optometry and Vision Science), which tests sunglasses for the Australian sunglass industry, found a considerable portion of noncompliant CE glasses (*Clin. Exp. Optom.* 2003;86:2:77-90). Dr. Dain said it was clear that Europe-standards compliance hadn't improved much in the 7 years since. The Australian sunglass industry, by contrast, is now regulated to the point where recalls are imposed on noncompliant sunglasses. The Australian Competition and Consumer Commission "will really ping you," he said.

Australia, where UV levels are high and the majority northern Europe-descended population is fair-skinned, was one of the earliest nations to recognize the potential for eye damage caused by sunlight. "In Australia if you'd been a bomber or fighter

pilot [in World War II] and developed cataracts, that was treated as a war-related disorder. They were flying at high altitudes with windscreens made of acrylic," which does not filter UV light, Dr. Dain said. Australia was also among the earliest countries to impose sunglass manufacturing standards in 1971, with the United States following six years later. The first European standards were not imposed until the 1980s.

UV intensity in Europe may not be nearly as high as Australia's, but Europeans are still vulnerable when it comes to eye exposure. Europeans not only have to worry about UV protection only in sunnier countries or during the summer, but encounter risks in the colder months due to snow. Eye disorders caused by reflections from snow are of special concern to Scandinavian optometrists and ophthalmologists, and at very high European latitudes and altitudes there is a lack of atmospheric dust and moisture to reabsorb UV light.

"When you start to get into the snow fields, UV is coming in from below, bypassing the natural protective mechanisms of the eye," Dr. Dain said. "The sunglass issue then becomes one of providing protection from the front but also the sides and the bottom."

Dr. Dain said that he and his colleagues are working to develop an international standard that would further detail the protections offered by each type of sunglass, and make it easier for sunglass manufacturers to create internationally marketable glasses.

The proposed international standards, Dr. Dain said, would be very similar to the Australian standards, yet somewhat weaker, and very similar in form and intent to Europe's EN 1836.

But enforcing them, of course, would be another matter.

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