

Skin and eye reactions caused by insect-repellent wrist bands

ANSES has issued a warning about the risks of wrist bands worn by children and adults to repel insects. Reactions such as burns as a result of accidental contact of the skin or mucous membranes with the chemicals contained in these bands have been recorded by poison control centres. Through its vigilance scheme, ANSES has been able to evaluate the 12 cases collected by the poison control centres since 2012. Following its analysis, the Agency recommends prohibiting the wearing of repellent wrist bands by infants and young children. Furthermore, it recommends manufacturers to include instructions on the packaging to ensure that users avoid direct skin contact with the side of the band containing the active substances.



Insect-repellent wrist bands come in the form of a bracelet, usually made of plastic, to which is attached a small plate or capsule that releases an odorous mixture of essential oils extracted from plants. Volatile chemicals can also be included in the mixture. After a certain period of use, the repellent system must either be replaced (interchangeable clip) or recharged using the solution provided with the wrist band or purchased separately.

The alert

The poison control centres (PCCs) alerted ANSES to a case of skin burns that occurred in a small child wearing an anti-mosquito wrist band that had come into contact with his cheek during naptime (see below). ANSES then identified all the cases that had occurred since 2012.

A non-isolated case

Over the period from 01/01/2012 to 31/08/2019, 12 cases of exposure to these wrist bands were recorded by the PCCs. In two cases, the individuals involved were adults and in nine cases children, including a 4-month-old infant (the age in the other case was not specified). In seven cases, the route of exposure was exclusively or predominantly dermal and resulted in local irritation-type reactions or general reactions of varying severity. In one of these, a 3-year-old child whose wrist band had remained in contact with his cheek during his nap woke up with redness corresponding to the imprint of the wrist band, which progressed over 24 hours into a second-degree burn. These injuries disappeared with supportive treatment after five days. In another case, an infant had several convulsive episodes after wearing an ankle band for one

month; here, it is possible that the substances contained in the wrist band had penetrated the body through the skin and caused the symptoms, as the device contained a mixture of essential oils and plant extracts, some with neurotoxic properties. Lastly, a case of generalised rash appearing in a child immediately after oral contact with a small plate was most likely an allergic reaction. This allergic-like reaction is consistent with the sensitising properties of geraniol (in particular), contained in the device. Moreover, of the five cases involving contact with the eyes, four were due to splashing after the capsule ruptured when handled (possibly during play) by young children, raising questions about the robustness of this type of device.

Where does the risk come from?

The vast majority of the substances used in these devices are potential skin and eye irritants, which explains the type of reactions – such as burns or erythema – observed after accidental direct contact between liquid from the device and the skin or mucous membranes. The intensity of these reactions seems to be greater in the event of prolonged contact with the capsule or small plate and contact with particularly fragile areas such as a young child's face.

In addition, it is not possible to rule out a mechanical phenomenon due to the wrist band's plastic composition, which can aggravate local irritation, as with the two adult subjects developing reactions described as abrasive during "normal" use.

Geraniol is a constituent frequently found in these devices; it is a fragrance also used in a multitude of household products (cleaning products), cosmetics (soaps, shampoos), perfumes, etc. These other sources of contact may therefore promote the development of sensitisation to this substance.

Although most manufacturers advise against the wearing of these wrist bands by anyone under 3 years of age, the case of an infant experiencing convulsions as a result of prolonged wear raises the question of an absolute contraindication of these wrist bands in very young children.

In addition, most packagings lack instructions on the maximum duration of use by older children.

ANSES's recommendations

Due to the claimed properties of some of the substances they contain, these wrist bands come under the regulations on biocides. As some active substances are still currently being assessed, wrist bands are not yet subject to marketing authorisation and may be sold during this transitional period. In light of these observations, based on the hazards related to certain constituents and in the absence of any assessment of the safety and efficacy of these devices, ANSES recommends prohibiting their use in infants and young children. Moreover, the instruction to avoid direct skin contact with the "active" side of the wrist band should also appear on the packaging.

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POUR EN SAVOIR PLUS, VOUS POUVEZ CONSULTER :

[Skin and eye reactions to insect-repellent wrist bands. Retrospective study of observations recorded by the French Poison Control and Toxicovigilance Centres from 01/01/2012 to 31/08/2019 \(in French\)](#)