

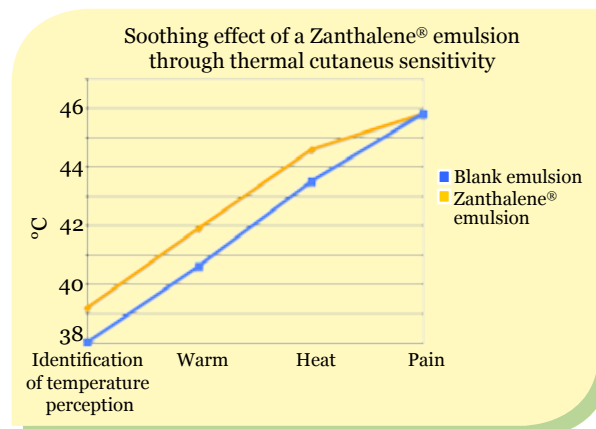
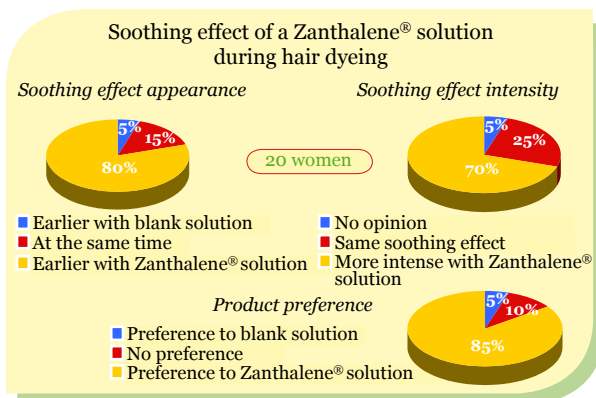


# Zanthalene®

Anti-itching, soothing, anti-irritant

ECOCERT VALIDATED

## Proven efficacy on humans



Twenty female volunteers<sup>1,2</sup> were selected for usually having discomfort during hair coloration. Two areas of the scalp have been defined for the application of a Zanthalene® solution at 0.5% and a blank solution. The hairdresser has evaluated the aspect of the scalp of the volunteers as far as concerning dandruff, irritation, global aspect of hair, before the application of test solution and 90 minutes after dyeing the volunteers' hair. At 60 minutes the volunteers answered a subjective questionnaire regarding their comfort and discomfort. The occurrence, intensity of the soothing effect has been described by the volunteers, which gave a global preference of 85% for the Zanthalene® solution versus the blank solution. The global aspect of scalp and hair has not varied.

Two additional studies<sup>3</sup> have been conducted to evaluate the soothing effect of Zanthalene® by cutaneous skin sensitivity. Twelve volunteers have been asked to define the perception of heat according to the following parameters: warmth (warm comfortable feeling), heat (discomfort) and pain, following to a thermal stimulus provided by an instrument delivering a certain quantity of heat and giving a continuous reading of skin temperature. Following to the first reading, the Zanthalene® emulsion (0.5% Zanthalene®, 2 µl/cm<sup>2</sup>) and the blank emulsion have been applied to the scapular area of volunteers. Thermal cutaneous sensitivity measurements have been performed after product application. Zanthalene® resulted to have a soothing effect on the "heat" perception, but does not affect the pain sensation.

An additional assessment<sup>4</sup> of the soothing and anti-itching effect of Zanthalene® on mosquito bites was performed on 40 healthy volunteers. They recorded the intensity of itching of at least 3 mosquito bites per arm. Globally, 67.5% of the volunteers reported an anti-itching effect of the Zanthalene® spray solution (0.5%) compared to the blank sample. Further clinical trials have been performed and underlined the same soothing effects of Zanthalene® in a variety of applications. Zanthalene® is a patented extract for cosmetic formulations.<sup>5</sup> Zanthalene® is obtained by supercritical fluid extraction CO<sub>2</sub>, a technology that involves no solvents.

## Mechanism of action

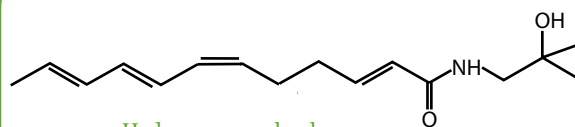
Zanthalene® has a strong transitory action on the neuromuscular synaptic transmission. This activation quickly leads to the depletion of the neurotransmitter thus blocking the synaptic transmission. *In vitro* evaluations<sup>2</sup> also suggest that the action of Zanthalene® is mediated by voltage dependent Na<sup>+</sup> channels as well as chemesthetic receptors (for tingling sensations) like TRPV1 and TRPA1.<sup>6,7</sup> Additionally, hydroxy- $\alpha$ -sanshool has been found to excite neurons by a unique mechanism involving inhibition of two-pore potassium channels.<sup>8</sup>

1. DermScan study 99827 (2000). - 2. Guglielmini G. and Cristoni A., "Zanthoxylum alatum extract inhibits skin sensitivity", *Cosmetic&Toiletries* 7, 47 (2002). - 3. DermScan studies 98333 and 98333/2 (1999). - 4. Indena, data on file. - 5. Patent US 6,419,950 B2; EP 1096944. - 6. Koo J.Y. *et al.*, "Hydroxy-alpha-sanshool activates TRPV1 and TRPA1 in sensory neurons", *Eur J Neurosci* 26, 1139-1147 (2007). - 7. Bryant B. and Mezhine I., "Alkylamides that produce tingling paresthesia activate tactile and thermal trigeminal neurons", *Brain research* 842, 452-460 (1999). - 8. Bautista D.M. *et al.*, "Pungent agents from Szechuan peppers excite sensory neurons by inhibiting two-pore potassium channels", *Nature Neuroscience* 11, 7, 772-779 (2008).



## Safety data

Zanthalene® has been tested for tolerability on human volunteers. It has proved to be void of irritant action on human skin and did not give rise to any sensitization phenomena.



Hydroxy- $\alpha$ -sanshool  
CAS N. 83883-10-7

## Characteristics

Zanthalene®		Available Documentation
HPLC content of total alkylamides: 4.4- 6.4%	Solubility*: soluble in Alcohol (95°), Propylene glycol**, Glycerin**, Butylene Glycol, Polyisoprene, C <sub>12-15</sub> Alkyl Benzoate, Wheat Germ Oil, Paraffin Oil	Botanical Certificate
Form: clear solution, yellow	Aqua (water): not soluble	Methods of Analysis
Stability: retesting date after 5 years		Reference Standard
Level of use: 0.5%		Declaration GMO free
Odour: characteristic of the extract		Safety Data Sheet
pH: not applicable (insoluble in water)		Confidential Documentation

\*solubility has been tested at 50 mg in 10 g of solvent (RT)

\*\*solubility has been tested at 50 mg in 10 g of solvent at 40-50 °C

## Formulation examples

O/W emulsion after sun, after shave	Formulative tips																										
<table border="0"> <tr><td>ZANTHALENE®</td><td>0.5%</td></tr> <tr><td>Isohexadecane</td><td>5.0%</td></tr> <tr><td>Glycerin</td><td>4.0%</td></tr> <tr><td>C<sub>12-20</sub> Alkyl Benzoate</td><td>2.0%</td></tr> <tr><td>Cyclomethicone</td><td>2.0%</td></tr> <tr><td>PEG-90 Glyceryl Stearate and Glyceryl Stearate</td><td>2.0%</td></tr> <tr><td>Lanolin Wax</td><td>1.0%</td></tr> <tr><td>Acrylates/C<sub>10-30</sub> Alkyl Acrylate Crosspolymer</td><td>0.5%</td></tr> <tr><td>Cetyl Alcohol</td><td>0.5%</td></tr> <tr><td>Antioxidants</td><td>q.s.</td></tr> <tr><td>Preservatives</td><td>q.s.</td></tr> <tr><td>Fragrance</td><td>q.s.</td></tr> <tr><td>Purified Water</td><td>as needed to 100</td></tr> </table>	ZANTHALENE®	0.5%	Isohexadecane	5.0%	Glycerin	4.0%	C <sub>12-20</sub> Alkyl Benzoate	2.0%	Cyclomethicone	2.0%	PEG-90 Glyceryl Stearate and Glyceryl Stearate	2.0%	Lanolin Wax	1.0%	Acrylates/C <sub>10-30</sub> Alkyl Acrylate Crosspolymer	0.5%	Cetyl Alcohol	0.5%	Antioxidants	q.s.	Preservatives	q.s.	Fragrance	q.s.	Purified Water	as needed to 100	<p>As a general rule, plant derivatives should be added to the phase most suitable for their dissolution or dispersion. In the case of Zanthalene®, its lipophilic nature makes it suitable for emulsions and should be added to the lipidic phase. It is anyway recommended to add Zanthalene® in a cool phase.</p> <p><b>Also suitable for:</b></p> <p>Products for the external treatment in after sun, after shave products, lotions for insect bites, bodycare and after peeling, after depilation: all conditions where the skin may be itching and irritated. A cosmetic formulation development study indicated Zanthalene® to be suitable for a broad range of different formulations.</p>
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## Did you know...

Reducing the feeling of discomfort appears to be an important source of wellness and improves the look.

*Zanthoxylum bungeanum* Maxim. is a remarkable example of success of ethnopharmacology: it is a perennial plant native to China and is widely used in its country of origin as a spice (Sichuan pepper, Hua jiao) to reduce the irritating properties of some foods and as a treatment for gastrointestinal pain. Its use as anti-itching and soothing agent may improve the general sense of wellness.

TRADE NAME	INCI (CTFA)	INCI (E.U.)	EINECS N.	CAS N.	INDENA CODE
Zanthalene®	Oleyl alcohol (and) Zanthoxylum bungeanum Fruit Extract	Oleyl alcohol	205-597-3	143-28-2	36ZTT0090
		Zanthoxylum bungeanum Fruit Extract	310-094-8	102242-62-6	