

## Sunscreen Spend up 100.2%, Melanomas up 64.83% & Non-Melanoma Skin Cancers up 47.09%



The following chemical UV filters, once they have been converted by a reaction between UV on your skin, only exert an anti-inflammatory effect.

> Oxybenzone Homosalate Octisalate Octocrylene Avobenzone Mexoryl SX Tinosorb S Uvinul A Plus Tinosorb M Neo Heliopan AP Uvinul T 150 Parsol SLX Iscotrizinol

The anti-inflammatory effects of certain substances, such as those found in some chemical sunscreens or after-sun products, could potentially mask the visible signs of sun damage, including redness and inflammation. This could make it harder to recognise when your skin has been exposed to too much UV radiation and when it is time to seek shade or reapply sunscreen.

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## Work Place Health & Safety

QLD WORK SAFE recommends the "use of Zinc Sunscreen for Lips, Ears and Nose."

### WORK HEALTH AND SAFTEY ACT 2011

17 Management of risks

- A duty imposed on a person to ensure health and safety requires the person:
- (a) to eliminate risks to health and safety, so far as is reasonably practicable; and
- (b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable.

#### Subdivision 2—What is reasonably practicable

#### 18 What is reasonably practicable in ensuring health and safety

In this Act, *reasonably practicable*, in relation to a duty to ensure health and safety, means that which is, or was at a particular time, reasonably able to be done in relation to ensuring health and safety, taking into account and weighing up all relevant matters including:

- (a) the likelihood of the hazard or the risk concerned occurring; and
- (b) the degree of harm that might result from the hazard or the risk; and
- (c) what the person concerned knows, or ought reasonably to know, about:
  - (i) the hazard or the risk; and
  - (ii) ways of eliminating or minimising the risk; and
- (d) the availability and suitability of ways to eliminate or minimise the risk; and
- (e) after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.

WorkSafe.qld.gov.au

YOU CAN ELIMINATE THE RISK OF CHEMICAL SUNSCREEN EXPOSURE TO YOUR WORKERS BY PROVIDING ZINC SUNSCREEN

### THE IMPORTANCE OF ZINC

Zinc (Zn) is a key micronutrient for marine phytoplankton (Weber 2018).

In the Tasman Sea, extremely low zinc concentrations have been reported, raising the possibility there of limitation of phytoplankton growth by zinc (Sinoir 2016).

Zn deficiency caused reduced growth rate, increased mortality, low body weight, skeletal deformities, cataracts and fin and skin erosion in fish (Akram 2019).

Zinc is required for the normal growth, development and function of mammals. It is an essential element of more than 200 metalloenzymes, including the antioxidant enzyme, superoxide dismutase, and affects their conformity, stability, and activity. Zinc also is important for the proper functioning of the immune system, and for glandular, Reproductive and cell health. (Elizabeth

F. Rostan md).







## The FDA (Food & Drug Administration, USA) sunscreen safety review, published 24/09/2021, has confirmed zinc

## oxide to be the only broad-spectrum UV Filter considered safe and effective (GRASE).

### UVA/UVB/UVC & Blue Light Broad Spectrum

- "Of the available sunscreens only zinc oxide provides effective protection across the UV band range of 240 to 400 nm, covering UCV (240 to 280 nm), UVB (280 320nm), UVA 2 (320 to 340 nm), and UVA 1 (340 to 400 nm)." [9]
  - "UVA rays account for 95% of our sun exposure. They cause skin aging and contribute to skin cancer."
  - "The risk for skin cancer doubles in people who have had five or more sunburns."
  - "UVA rays penetrate deeply into the skin layers, damaging collagen and cells which leads to wrinkling, hyperpigmentation and loss of elasticity."
  - "UVB rays mostly affect the outer layers of the skin." [10]

### Zinc Oxide Safety

- "Treatment with both types of uncoated ZnO nanoparticles mobilized pathways and responses centered on cellular stress, survival and apoptosis." [11]
- "A new study led by two Australian universities has found evidence that zinc oxide nanoparticles used in sunscreen does not cause cellular toxicity even after repeated applications." [11]
- "The levels we found in blood were very small," says McCall, a research consultant on nano0safety at CSIRO. "After applications over five days, the levels of the tracer zinc in the blood were one thousandth of what is the naturally occurring total zinc levels in the blood." [11]

### Zinc Anti-Bacterial & Wound Healing

- "Zinc has been used during the regime of Pharaohs, and historical records show that Zinc Oxide was used in many ointments for the treatment of injuries and oils even in 2000BC." [12]
- "Of all natural and synthetic wound dressing materials, the chitosan hydrogel microporous bandages laced with zinc oxide nanoparticles developed by Kumar Etal are highly effective in treating burns, wounds and diabetic foot ulcers." [12]

### Hypoallergenic

- "A study in Denmark, 56.7% of women (3,288,600 million) and 33.6% of men (1,948,800 million) in Denmark have experienced an adverse effect after using cosmetics at least once." [13]
- "In a study in which a 25% zinc oxide patch (2.9mg/cm<sup>2</sup>) was placed on human skin for 48 hours, there was no evidence of dermal irritation."
- "In another study comparing the dermal effect of different zinc compounds in mice, rabbits and guinea pigs, zinc chloride was clearly the strongest irritant, followed by zinc acetate, causing moderate and zinc sulfate, causing low irritations. Consistent with the study of Agren, zinc oxide did not show any irritant effect on skin." [14]

### Infants, Babies and Pregnancy

The FDA's release published 24/08/2021 stated that "infants are at greater risk than adults of sunscreen side effects. "Zinc Oxide is considered safe for infants by the FDA and is even present at up to 40% in nappy rash creams. Therefore, if there is a situation where sun protection such as protective clothing or shade is not available the safest option for babies is a Natural Zinc Based 100% Organic Vegan Sunscreen. Amazon US search volume (Year on Year 2020/2021) has shown that 'organic baby sunscreen' now represents 25% of baby sunscreen searches versus 9% the previous year, indicating a large and growing market.





# Sunscreen Safety By Dr Russell Hills

A recent study suggests that chemical sunscreens are absorbed in much higher concentrations than previously thought. This is not to suggest that they should not be used but further studies need to be undertaken in this area.

Although published studies suggest that several chemical sunscreens also interact with human sex or thyroid hormones, there is not enough information at present to determine the potential risks to humans from hormone disruption.



Rank	Country	Number	ASR/100,000
	World	1,198,073	11.0
1	Australia	58,839	140.0
2	New Zealand	10,271	127.5
3	US	524,737	64.9
4	Canada	61,645	60.6
5	Switzerland	12,772	49.5
6	Ireland	4,788	46.2
7	The Netherlands	17,413	34.5
8	Germany	90,379	31.3
9	Montenegro	378	29.6
10	Luxembourg	389	27.3

Total Global Non-Melanoma Skin Cancer Incidence and Rates in 2020 (wcrf.org)

Queensland unfortunately has the highest incidence of skin cancer in the world. WorkSafe Qld recommends that outdoor workers minimize ultraviolet radiation which can cause skin cancer by wearing sun protective clothing, a hat and sunglasses, seeking shade and applying sunscreen.



PROTECTION

Sun protection for babies is best provided by a physical

sunscreen such as Zinc Oxide as Chemical sunscreens are absorbed more than in adults.

WorkSafe Qld advises that sunscreen should be SPF 30+ or more, broad spectrum and demonstrate water resistance.

Aesthetix Sunscreen fulfils all of these criteria and is

SPF 50+.

The recent contamination of some chemical sunscreens (available in Australia) with Benzene (a carcinogen) in the manufacturing process cannot occur in the production of Zinc Oxide sunscreen. The recent contamination of some chemical sunscreens (available in Australia) with Benzene (a carcinogen) in the manufacturing process cannot occur in the production of Zinc Oxide sunscreen.



Some chemical sunscreens can bleach coral of it's nutrients whereas Zinc Oxide doesn't do this and is classified as Reef Safe Aesthetix sunscreen is also available in tinted and nontinted, is 100% organic, 100% certified vegan and is Australian made being manufactured here in Brisbane. This product is non greasy and non-whitening and Zinc Oxide has been shown to not cause irritation when applied to the skin.

INTED

The active ingredient is Zinc Oxide which has been classified by the FDA as GRASE (generally regarded as safe and effective) unlike some chemical sunscreens which can cause adverse effects.

Chemical sunscreens are not GRASE because more data is needed to make a GRASE determination.





Dr Russell Hills M.B.B.S. (QLD). F.A.C.D., F.A.C.C.S. Dermatologist and Cosmetic Dermatologic Surgery Member of The Australasian Academy of Facial Plastic Surgery Fellow of the Australian College of Cosmetic Surgery Fellow of the Australasian College of Dermatology.



100% ORGANIC

UVA UVB UVC

A ZinCLEAR

% certified vego REEF SAFE



## **Our Regulatory Documentation**

**Technical** Information

TGA License						100% Organic Audited							
MI-2022-LI-08123-1			¥*2				COMM TROUMICAL BERVICES	Technical	Consultancy to the P	Pharmaceutical and	Life Science I	ndustries	
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			ALC: NO CONTRACT				AUDITED TO NSF/ANSI 305-2016	ГЕТ	<b>TED O</b>		NIC		
		Aus	stralian Govern	ment			AUSTRI		IER UI	r Unga		AUDII	
		Departme	ent of Health and	Aged Care									
		Therap	eutic Goods Admii	nistration				Formulation Assessment - Organic The following table is a review an	d assessment of	f conformance o	f the ingre	dients as "organic".	
	Licence to M	Manufact	ure Thera	peutic Goo	ds – Part 1			Zinclear XP Dispersion Range	Function	6 mm m	NOP	NSF/ANSI-305-2016	%
			Licence Number	r:				Ingredient	Punction	Minord minoral	Compliant	Compliant & Ref.	Allowed
		N	MI-2022-LI-08123	-1				Aluminum Oxide	UV block	Mined mineral	Yes	Yes	
			Granted to:					Zinc Oxide/Aluminium Oxide Blend	UV block	Mined mineral	Yes	Yes	
		А	Veganic SKN ABN: 53 142 515 4	37				Isostearic Acid	Carrier	Botanical	Yes	Yes E.2.1, E.2.3, E.2.7, 6.5 Yes	no limit
		Primary M	Manufacturing Si	te Address:				Cocos Nucifera Oil	Currier	Dotanical	100	E.2.4, E.2.5, 6.5 Yes	
		Unit	3/81 Shettleston	Street				(Coconut Oil)	Carrier	Botanical	Yes	Certified by supplier	no limit
		F	Rocklea QLD 41	06				Helianthus Annuus Seed Oil (Sunflower Oil)	Carrier	Vegetable Oil	Yes	Yes Certified by supplier	no limit
		Secondary	Manufacturing S	ite Address:									
		Unit F	1/81 Shettleston Rocklea QLD 41	Street 06									
	The manufacturer above is hereby authorised under Section 38 of the <i>Therapeutic Goods Act</i> 1989 to carry out the following steps in the manufacture of therapeutic goods at the manufacturing site addresses specified above. Primary Site: Unit 3/81 Shettleston Street, Rocklea QLD 4106							Tennyson, S.A. 5022, Australia Phone: +61 (0)401 657 477 Email: <u>pharmsche@ozemail.com.au</u>					<u>iail.com.au</u>
	Manufacturing Type	Sterility Do	osage Form	Product Category	Manufacturing Step	100% Certified Vegan							
	Sunscreen manufacture	Non Sterile Fo	opical Sunscreen	Listed Therapeutic	Full Product Manufacture	20070 Certified Tegan		Vegan &	Veget	arian	Cert	ification	
		To	anical Supection	Listed Therapeutic	Full Product Manufacture			vegan e	TEDOE	CEDTU		TION	•
	Sunscreen manufacture	Non Sterile Fo	orms, Semi Solids	Good	- excluding Testing			LETTER OF CERTIFICATION					
	Secondary Site: Unit 1	/81 Shettlesto	on Street, Rocklea	QLD 4106				VeganicSKN Ltd					
	Manufacturing Type	Sterility Do	osage Form	Product Category	Manufacturing Step								
	Medicine manufacture	Non Sterile All	l Dosage Forms	Listed Therapeutic Good	Storage			VeganicSKN Ltd					
								Code Product	Sunscreen			Vegan	
								Anti-Aging Eye	Sunscreen SPF50	0		Vegan	
								Anti-Aging Facia	al Sunscreen SPF	50		Vegan	
								Anti-Aging Mois	turising Sunscree	n SPF50		Vegan	
								Baby Rash Sun	screen SPF50			Vegan	
								Body Moisturisin	ng Sunscreen SPI	F50		Vegan	
	This licence is the property of the The	erapeutic Goods Adminis	stration and must be return	ed or destroyed upon demand				Body Sunscreen	n SPF50			Vegan	
	This licence remains valid until other The status of an Australian licence ma	rwise suspended or revol ay be viewed at https://	ked by the Therapeutic Goo www.ebs.tga.gov.au/	ds Administration.				Brightening Eye	Sunscreen SPF5	50		Vegan	
					A Harble Colour			Dark Circles Ey	e Sunscreen SPF	50		Vegan	
	PO Box 100 Woden ACT 2606 ABN 4 Phone: 1800 020 653 Fax: 02 6203 1	40 939 406 804 1605 Email: info@tga.go	w.au www.tga.gov.au		Regulation		164.2	Dry Skin Sunsc	reen SPF50			Vegan	
					Page 1 of 2			Facial Moisturis	ing Sunscreen SF	PF50		Vegan	
							RICHARD RABKIN	Facial Sunscree	en SPF50			Vegan	
							MANAGING DIRECTOR	Facial Sunscree	en with Hyaluronic	Acid SPF50		Vegan	
							Unauthorised use of the VegeCert symbol is a violation of applicable food	Hydrating Facia	I Sunscreen SPF	50		Vegan	
							sabetting statutes and copyright law.						
//////							Expires: July 31, 2023	3200 DUFFERIN ST #308	I TORONTO, ON	INFO@VEGECI	ERT.COM	WWW.VEGECERT.COM	м

#### **About Us:**

VeganicSKN is trusted by over 35 Brands Globally. Our TGA Audited manufacturing facility is 100% organic and audited by PHARMCHEM Technical Services to NSF/ANSI 305-2021 standards, as well as Certified Vegan by VegeCert UK. All our products qualify for the 'Made in Australia' logo and we comply with 'Free From' lists of major retailers such as Mecca, Sephora & Walmart.





## **Testimonials**

## ZINC

### Mark Chandler, B.Sc. Chemistry, President of ACT Solutions Corp.

Our Products:

We at ACT Solutions Corp have found so much value in the exciting new ZinClear XP dispersions. Two incredible example formulations have been developed in our US labs using the ZinClear XP53 Coconut dispersion which have caused quite a stir in the industry for their tactile and visual properties (non-greasy and non-whitening), high biobased content, cold-processibility, and high in-vitro SPF. Coconut Care SPF uses 32.5% of the wonderful coconut dispersion (approximately 17% ZnO) to achieve an in-vitro SPF of over 70, and Coconut Luxe Ultimate Sun Defense employs 39% coconut dispersion (roughly 21%) yielding an in-vitro SPF of 74.0.

Yes, ZinClear XP Powder is exceptional! Achieving good SPF with ZnO can be difficult, but here are two strategies as shown in the formulations attached for getting excellent efficiency with ZinClear technology. The two attached formulations with 20% and 17.5% active ZnO respectively have in-vitro SPF readings above 100, with Critical Wavelengths of greater than 372nm. Both feel wonderful and do not leave a white cast on the skin.

### Julian Hewitt, B.Sc. (Hons.) Chemistry, Director of JPH SunCare Technologies Ltd.

### ZinClear XP65 COCO

This easy to use zinc oxide dispersion combines high efficacy with transparency on skin. The high solids content of the dispersion. The carrier oil, cococaprylate/caprate, is ideal for a variety of cosmetic applications with its light, soft skin feel. The high solids content of the dispersion provides the formulator with flexibility, allowing for other emollients to be combined with to tailor the skin feel to different requirements. In terms of efficacy, with the right formulation, ZinClear XP65COCO can deliver as much as 2 SPF units per % of ZnO. All components of the dispersion are natural or naturally-derived, so it is COSMOS-approved and fits perfectly with the trend for natural formulations.

## Brian Kearney, Director of Ethical Zinc Pty Ltd

"VeganicSKN's product development capabilities are unmatched. Their focus on 100% Organic & Vegan aligns with our ethical values. They are quick to adapt, always on top of the latest trends and leverage the most advanced technology in sun care."

## Dr Russell Hills, M.B.S.S. (QLD). F.A.C.D., F.A.C.C.S. Dermatologist and Cosmetic Dermatology Surgery

"I have developed a zinc oxide sunscreen (Aesthetix) which contains no chemical sunscreens and is therefore SPF50, broad spectrum and reef safe. It is also 100% organic and 100% certified Vegan and is available in tinted and non-tinted forms."





# Zinc Oxide is Safe - References

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# **Countries where Chemical UV Filters Banned or Proposed to be banned:**

	Octinoxate	Avobenzone	Oxybenzone (Bp-3)	Methylben- zylidene Camphor	Homosalate	Octocrylene	Methylpara- bens	Phenoxy- ethanol	Octisalate	Ensulizole	Meradimate	Padimate O	Sulisobenzone (Bp-4)	Dioxybenzone (Bp-8)	Cinoxate
USA				$\checkmark$											
Hawaii	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$	$\checkmark$	
U.S. Virgin Islands			$\checkmark$	~		$\checkmark$	$\checkmark$								
Japan		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$				$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$	
Sweden			$\checkmark$								$\checkmark$	$\checkmark$			
Nature Reserves Mexico	$\checkmark$	$\checkmark$	$\checkmark$	~	~	$\checkmark$								~	
Aruba			$\checkmark$												
Marshall Islands	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$								$\checkmark$	
Bonaire	$\checkmark$		$\checkmark$								$\checkmark$				
Palau	$\checkmark$		$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$	$\checkmark$					$\checkmark$	$\checkmark$	

References: [15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32]





# Harmful Effects of UV Chemical Filters

Chemical	Hormone Disruption	Reproductive & Developmental Toxicity	Systemic Absorption & Accumulation	Photo-Contact Allergy & Dermatitis	Nervous System Effects	Suz
Oxybenzone (Bp-3)	$\checkmark$	$\checkmark$	$\checkmark$			1
Octinoxate	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$		
Homosalate	$\checkmark$		$\checkmark$			
Avobenzone						
Phenoxyethanol				$\checkmark$	$\checkmark$	
Methylparabens	$\checkmark$	$\checkmark$				
Methylbenzylidene Camphor	$\checkmark$	$\checkmark$		$\checkmark$		3
Octocrylene			$\checkmark$	$\checkmark$		-
Sulisobenzone (Bp- 4)	$\checkmark$	$\checkmark$	$\checkmark$			
Cinoxate	$\checkmark$	$\checkmark$				$\geq$
Dioxybenzone (Bp-8)	$\checkmark$	$\checkmark$	$\checkmark$			
Octisalate		$\checkmark$	$\checkmark$	$\checkmark$		
Ensulizole	$\checkmark$	$\checkmark$				
Meradimate	$\checkmark$			$\checkmark$		
Padimate O				$\checkmark$		

uzuki

- "Hydroxylated benzophenones exhibited estrogenic activity in human breast cancer cell line MCF-7." [54]
- "Benzophenone and some related compounds showed significant inhibitory effects on the androgenic activity of dihydrotestosterone in rat fibroblast cell line NIH3T3," [54]
- "Benzophenone gave positive responses in uterotrophic assay using ovariectomized rats." [54]
- "2,4,4V-triOH-BP was positive in the Hershberger assay using castrated rats." [54]
- "These compounds are reported to be absorbed through human skin, and bioaccumulation may occur in wildlife and humans." [54]
- "Problems have arisen with photoallergic reactions in patients with suspected clinical photosensitivity." [54]





# UV Chemical Sunscreens and Chlorine in Swimming Pools is a Dangerous Combination

Chlorine in swimming pools can react with certain chemicals found in sunscreens particularly those that contain organic compounds such as avobenzone, octocrylene, and oxybenzone. These reactions can lead to the degradation of the sunscreen, reducing its effectiveness in protecting the skin from the sun's harmful UV rays [55].

The breakdown of chemical sunscreens in swimming pools can potentially affect children in several ways.

- Skin Irritation: When chemical sunscreens break down in chlorine, they can produce new compounds that may irritate the skin. This can be particularly problematic for children, who may have more sensitive skin that adults. Skin irritation can cause discomfort, itching, redness and in some cases, may lead to skin rashes or allergic reactions [56].
- Respiratory problems: Some studies have suggested that the use of chemical sunscreens in combination with chlorinated water may increase the risk of respiratory problems in swimmers. This is thought to be due to the production of volatile organic compounds (VOCs) when chemical sunscreens break down in chlorine. These VOCs can irritate the respiratory system and may cause symptoms such as coughing, wheezing, and shortness or breath. For Example, oxybenzone, a common ingredient in chemical sunscreen[56,57].

The Queensland State Government recognises the potential for chemical sunscreens to break down in swimming pools.





# **UV Chemical Filter References**

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