

**De effecten van minerale olie. Nieuwe inzichten uit de medische wereld II.**  
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**Producten op basis van minerale olie afgewezen voor de verzorging van de gevoelige (baby)huid!!!**

Het gebruik van minerale olie, tot voor kort algemeen gebruikelijk in ziekenhuizen, komt steeds verder onder druk te staan.

We citeren in deze bijdrage uit een recent Amerikaans artikel over de verzorging van de gevoelige huid van prematuurtjes in ziekenhuizen, gepubliceerd in "Advances in Skin & Wound Care" (= Verbeteringen in de Huid- en Wondverzorging, Link):

"Neonatal health care has continued to advance over a period spanning three decades. However, the treatment of preterm and term infant skin has lagged behind. Current AWHONN and NANN guidelines call for the use of a petrolatum-based product in the neonate setting. Petrolatum may pose significant risks associated with NICU fire hazards, barrier occlusion, microbial contamination and toxin absorption. In order to reduce infant mortality and improve neonatal skin care, advanced emollient technologies should be considered. Semipermeable silicone derivatives have demonstrated a reduced rate of combustion as compared to petrolatum. Silicone derivatives also sustain transcutaneous respiration while preventing e-TEWL. Certain silicone-based emollients have further demonstrated a reduced rate of microbial contamination and toxin absorption. The purpose of this report is to review the risks associated with current highly-flammable and occlusive infant skin care products and discuss the benefits of oxygen-compatible, silicone-based neonatal emollients."

**Samengevat: los van het feit dat op petroleum (minerale olie) gebaseerde producten in gevaarlijke mate ontvlambaar zijn, leiden ze tot het afsluiten van de huid, microbacteriële besmetting en vergiftiging van de huid. Producten die de huid niet afsluiten, als voorbeeld worden hier producten op basis van siliconen genoemd, hebben deze nadelen niet.**

"Skin care for high-risk neonates requires knowledge of the unique anatomy and physiology of infant dermis, epidermis and stratum corneum. During the neonatal period, many infants develop preventable, clinically apparent skin problems. Moreover, preterm neonates frequently experience morbidity caused by compromised skin barrier integrity. Physiological differences in immature skin, especially in the epidermis and stratum corneum, place term and preterm infants at significant risk of complete barrier breakdown. In fact, one NICU study conducted at All Children's Hospital in St. Petersburg, Florida found that 21% of extremely low birth weight infants suffered skin breakdown during the first week of life. In order to reduce the risk of infant mortality, improving neonatal emollient treatment should be considered. Additional studies are recommended to determine which products can provide proper neonatal skin care while maintaining strict fire safety standards. Application of petrolatum-based products, such as Aquaphor., occludes the stratum corneum.

Occlusion is problematic because while blocking TEWL, it also reduces the transcutaneous respiration necessary for normal barrier repair. It has been known since 1851 that human skin consumes oxygen from the atmosphere. Recently, Stucker et al. utilized the innovative oxygen fluxoptode to make local measurements of the transcutaneous oxygen uptake of human skin. Published data on the oxygen diffusion properties of skin and intracutaneous profiles of oxygen partial pressure indicated that on normal, humidified skin, the stratum corneum and epidermis are almost exclusively supplied by external oxygen up to a depth of 0.25-0.40 micrometers."

**Deze tekst geeft aan dat algemeen wordt vastgesteld dat de huid niet goed kan herstellen door de afsluitende werking van de minerale olie. Als één van de redenen wordt hier aangegeven dat de menselijke huid (het stratum corneum en de epidermis) haar zuurstof bijna volledig uit de omgeving haalt en dus moet kunnen blijven ademen om goed te blijven functioneren. De minerale olie maakt dit echter onmogelijk. Uit andere studies, zoals die van Dr. Feingold, weten we dat het afsluiten van de huid ook andere belangrijke huidprocessen verstoort. Het resultaat is altijd de verstoring en vertraagd of onvolledig herstel van de huidbarrière.**

"The width of the epidermis varies from 0.04 to 0.15mm with the average of 0.1 mm or 40 to 150 micrometers. Oxygen transport into the epidermis via the microcirculation within the dermis had a negligible influence on the upper layers of the skin. W. Wang further supported the importance of transcutaneous respiration by displaying the significant effect of skin surface conditions on the partial pressure of epidermal oxygen. Occluding neonatal skin with petrolatum-based products prevents transcutaneous respiration, thereby interfering with cellular respiration and impeding barrier development. In addition, studies demonstrate that the occlusive effects of petrolatum trap microorganisms in the layer of water derived from the transepidermal water confined between the stratum corneum and the applied petrolatum barrier. Long term studies reflect a concern over the use of petrolatum-based products in NICUs One such study was conducted at a 48 bed NICU private hospital in Houston, Texas. Clinical trials were performed in order to determine the cause of a three-fold increase in the rate of systemic candidiasis per 1000 NICU patient days. The rate had increased from 5.1% in 1996 to 17.4% in 1997. Researchers concluded that the application of topical petrolatum ointments enhanced the adherence of *Candida albicans* to the stratum corneum, thus increasing the rate of systemic candidiasis. Petrolatum application may increase the risk of infection by trapping microorganisms under the occlusive barrier and enhancing microbial adherence to cutaneous surfaces."

**De toename van bacteriële huidinfecties in ziekenhuizen is dus toe te schrijven aan het "opsluiten" van bacteriën tussen de huid en de afsluitende minerale-oliefilm. Het woekeren van deze bacteriën leidt uiteraard tot huidschade. Ook wie thuis afsluitende cosmetica-producten met minerale olie of lanoline gebruikt loopt natuurlijk een verhoogd risico op huidinfecties.**

"Petrolatum-based products completely occlude neonatal skin, prevent barrier repair and interfere with transcutaneous respiration and proper barrier function. Numerous clinical trials have concluded that silicone-based products effectively treat barrier breakdown resulting from disordered and damaged skin. Furthermore, silicone-based products that contain natural skin lipids such as omega 3 and omega 6 fatty acids reduce the incidence of microbial contamination. Law et al. found that, dissimilar to petrolatum, skin surface lipids inhibit the adherence of *Candida albicans* to the stratum corneum (...) Natural skin lipids provide superior barrier protection without the risks associated petrolatum, lanolin and mineral oil application."

**Waar op petroleum of lanoline gebaseerde producten de huid volledig afsluiten en daardoor de normale en doorlopende huidvernieuwing verstoren, doen producten zonder deze stoffen dat niet en leiden vooral door de aanwezigheid van natuurlijke huideigen lipiden tot een superieure (sic!) huidbarrière.**

"Recommended neonatal emollients contain numerous hazardous ingredients that are detrimental to the development of infant skin. Aquaphor's twenty-five year old formula consists of petrolatum, lanolin and mineral oil. Petrolatum is a fraction of petroleum, which consists of hydrocarbon molecules, including oxygen, nitrogen and sulfur atoms. The hydrocarbon constituents of petroleum form paraffins, olefins, and cycloparaffins, which are used to produce gasoline, kerosene, diesel fuel, asphalt, tar and petrolatum. The processing of petroleum to petroleum contamination during the poorly regulated purification process remains a considerable risk. In sum, the toxic impurities of petrolatum provide strong evidence against the application of petrolatum-based products to sensitive neonatal skin. Lanolin originates as a secretion from the sebaceous glands in sheepskin. The substance is removed from the wool by scouring and high-speed centrifugal separators. Thirty-three alcohols and 36 fatty acids have been identified as constituents of lanolin, including aliphatic, steroid and 260 triterpinoid alcohols; as well as saturated nonhydroxylated, unsaturated nonhydroxylated and hydroxylated acids. Furthermore, approximately 26 pesticide residues are found in commercial lanolin, which have a concentration allowance of 40 parts per million. Chemical sheep dips used to control lice and other sheep parasites commonly include organochlorine, which consists of chlorinated benzene rings, DDT, lindane, dieldrin and aldrin. Organochlorine is linked to numerous adverse side effects, most notably, the induction of serious nervous disorders. Sheep dip pesticides also include synthetic parathyroid, insect growth regulators, sinuses, ivermectins and magnesium fluorosilicate. La Leche League International, a central advocate for infant health, recommends against topical lanolin application based on the substance's pesticide content. Neonatal emollients containing lanolin may be hazardous to infant skin, including risks associated with pesticide absorption. Mineral oil is yet another popular ingredient derived from petroleum that is found in recommended neonatal emollients. The petroleum-derivative is used industrially in machine shops as a cutting fluid and lubricating oil. Similar to petrolatum, mineral oil is highly flammable and imposes the risk of occluding the skin, thus trapping microorganisms and toxins between the stratum corneum and the applied barrier. Consequently, the skin becomes irritated, infected and incapable of performing proper barrier functions. Moreover, the FDA requires infant skin care products such as Johnson's baby oil to print the following label warning: Do not apply to irritated skin. If rash occurs discontinue use.

Numerous reports have found that mineral oils contain strong concentrations of potent carcinogens, namely polycyclic aromatic compounds. Roy et al. compared the mutagenicity, polynuclear aromatic compound content and skin carcinogenicity of a series of petroleum-derived mineral oil mixtures. The study found that mineral oil carcinogens are strongly linked to mutagenic and dermal carcinogenic activities. Therefore, mineral oil application to underdeveloped neonatal skin may contribute to barrier breakdown and dysfunction."

**Deze tekst geeft aan dat er zich een heleboel gifstoffen in zowel minerale olie als lanoline bevinden. Een aantal daarvan zou bovendien een oorzaak van huidkanker zijn (dermal carcinogenic activities). Dit zijn natuurlijk allemaal extra redenen om maar gewoon van het gebruik ervan af te zien.**

De wetenschappers concluderen dan ook:

"The application of products containing petrolatum, lanolin and/or mineral oil should be avoided. Instead, semipermeable (...) emollients with natural skin lipids should be considered."

**Om al deze redenen raden ook wij aan om huidverzorgingsproducten met minerale olie of lanoline te vermijden en te kiezen voor gezondere producten op basis van huideigen of huidverwante natuurlijke oliën (de 'natural skin lipids' uit de tekst).**

Voor het volledige artikel, klik hier: [Advances in Skin and Wound Care](#)

U herkent minerale oliën in een product als:

- Mineral Oil
- Petrolatum (Vaseline)
- Paraffinum-Liquidum
- Paraffinum-Subliquidum
- Cera Microcristallina
- Microcrystalline Wax
- Ozokerit
- Ceresin

Om na te gaan of uw product wel bestaat uit de beste natuurlijke en/of huideigen vetstoffen kijkt u op de verpakking naar de aanwezigheid van deze plantaardige huidgelijkende vetstoffen:

- natuurlijke plantaardige teunisbloemolie (INCI = Oleum Oenotherae Biennis)
- natuurlijke plantaardige sesamololie (INCI = Oleum Sesami Indicae)
- natuurlijke plantaardige sheabutter (INCI = Oleum Butyrospermi Parkii)
- natuurlijke plantaardige macadamiaolie (INCI = Oleum Macadamiae)
- natuurlijke plantaardige jojobaolie (INCI = Oleum Simmondsiae Californicae)

En naar deze 100% huididentieke vetstoffen:

- natuurlijke huideigen glycerine (INCI = Glycerol)
- natuurlijke huideigen glycerinewas (INCI = Glyceryl Stearate)
- natuurlijke huideigen cholesterine (INCI = Cholesterol)
- natuurlijke huideigen talgwas (INCI = Cetearyl Octanoate)
- natuurlijke huideigen triglycerides (INCI = Caprylic/Capric Stearic Triglycerides)
- natuurlijke huideigen fosfolipiden (INCI = Lecithin)

De natuurlijke 'skin surface lipids' waarvan sprake in de tekst - en die leiden tot de genoemde superieure huidbarrière - herkent u als volgt:

- natuurlijke huideigen fosfolipides (INCI = Lecithin)
- natuurlijke huideigen ceramides (INCI = Ceramid)
- natuurlijke huideigen glycolipides (INCI = Glycolipids)
- natuurlijke huideigen spingholipides (INCI = Sphingolipids)
- natuurlijke huideigen phytosphingosine (INCI = Phytosphingosine)

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