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A close-up photograph of a person's foot, specifically the toes. The skin is severely irritated, showing redness, swelling, and peeling. Several artificial, yellowish, curved nails are attached to the toes. A green surgical instrument is visible on the left side of the foot.

# Künstliche Nägel und Wimpern Allergologische Probleme

***B. Kränke***  
*MedUni Graz*



(Foto: Thinkstock, aus: Mädchen.de)

Brigitte → Beauty → Haut → Gefährliche Inhaltsstoffe in Kosmetik: Aufgepasst - wenn Formaldehyd im Na

# Aufgepasst - wenn Formaldehyd steckt!



Es klingt beängstigend: Formaldehyd in Nagellack steht im Verdacht, Allergien auszulösen. Außerdem wird ein Zusammenhang mit Allergien vermutet. Wie groß ist die Gefahr?

© Africa Studi / shutterstock

## Die Angst vor Formaldehyd in Nagellack

Die amerikanische EPA (Environmental Protection Agency) stuft Formaldehyd als "wahrscheinlich krebserregend" ein. Wenn man die Dämpfe der Lacke intensiv einatmet, soll Formaldehyd sogar Krebs im Nasen- und Rachenraum auslösen können. Mehr Infos über [Allforeves.com](#).

**3 von 9**  
**Benecos**  
 Die Nagel Phthalate

**8 von 9**  
**Sante**  
 Auch Sante achtet darauf, seine Lacke möglichst verträglich zu machen. Sie sind "3Free" und kommen ohne Formaldehyd, Toluol und Kolophonium aus. Mehr Infos unter [Sante.de](#).

**5 von 9**  
**Kure Bazaar**  
 Die Lacke von Kure Bazaar behalten bis zu 85 Prozent natürliche Inhaltsstoffe wie z. B. Zellstoff, Getreide, Baumwolle, Kartoffeln und Mais. Toluol, Formaldehyd oder Phthalate sucht man vergebens. Plus: Alle Lacke sind vegan. Mehr Infos über [Allforeves.com](#).

**6 von 9**  
**Organic Glam**  
 Der Name soll schon auf den grünen Charakter aufmerksam machen: Organic Glam verwendet in seinen Lacken kein Dibutylphthalat, Diethylhexylphthalat, Formaldehyd, Toluol und keine halogenorganischen Verbindungen, die Allergien auslösen können und zudem im Verdacht stehen, krebserregend zu sein. Mehr Infos über [Greenglam.de](#).

Tritt eine Unverträglichkeitsreaktion  
auf Nagelkosmetika auf:

Wo präsentiert sie sich für den (Haut-) Arzt/Ärztin

?











## Kunstnägel gesundheitsschädlich? – Die Risiken

0 Kommentare



Kunstnägel – ob aus Gel oder Acryl – sind eine attraktive Alternative für all diejenigen, die Wert auf gepflegte und schöne Hände legen. Wer keine Zeit oder Lust hat, sich selbstständig zu maniküren, kann dies durch den einfachen Gang ins Nagelstudio ersetzen. So schön die Kunstnägel aber aussehen, bergen sie – wie alle künstlichen Stoffe, die dem Körper zugeführt werden – auf Dauer auch Gefahren.















# Nagelkosmetik

- Allergien / Epidemiologie -

WaBoLu

01  
04

ISSN

0175-4211

**Untersuchungen zur  
Verbreitung umweltbedingter  
Kontaktallergien mit  
Schwerpunkt im privaten  
Bereich**

UMWELTFORSCHUNGSPLAN DES  
BUNDESMINISTERIUMS FÜR UMWELT,  
NATURSCHUTZ UND REAKTORSICHERHEIT

Forschungsbericht 299 61 219  
UBA-FB 000574

- Ca. 61.000 Personen untersucht:  
-> 167 hatten eine Allergie auf Nagelkosmetika
- In 26% ein Handekzem
- In 39% ein Ekzem der Gesichtshaut



| Allergen                                | n   | n pos | % pos |
|-----------------------------------------|-----|-------|-------|
| 2-Hydroxyethylmethacrylat (HEMA)        | 62  | 22    | 35.5  |
| Ethylenglycol-dimethacrylat             | 64  | 20    | 31.3  |
| Duftstoff-Mix                           | 167 | 19    | 11.4  |
| 2-Hydroxypropylmethacrylat (HPMA)       | 41  | 15    | 36.6  |
| Methylmethacrylat                       | 67  | 13    | 19.4  |
| Perubalsam                              | 167 | 13    | 7.8   |
| Hydroxyethylacrylat                     | 37  | 12    | 32.4  |
| p-Phenylendiamin                        | 167 | 9     | 5.4   |
| Triethylenglycol-dimethacrylat (TEGDMA) | 63  | 9     | 14.3  |
| Toluolsulfonamid-Formaldehydharz        | 41  | 7     | 17.1  |
| (Chlor)-Methylisothiazolinon (MCI/MI)   | 166 | 6     | 3.6   |
| Terpentin                               | 165 | 6     | 3.6   |
| Amerchol L-101                          | 125 | 4     | 3.2   |
| 4,4'-Diaminodiphenylmethan              | 59  | 3     | 5.1   |
| Wollwachsalkohole                       | 167 | 3     | 1.8   |
| Campferchinon                           | 13  | 2     | 15.4  |

| Year | Age (years) | Sex | Site of contact allergy | Atopy       | Occupation                                  | Occupational? | Exposure to (meth)acrylate                                                |
|------|-------------|-----|-------------------------|-------------|---------------------------------------------|---------------|---------------------------------------------------------------------------|
| 2002 | 45          | M   | Hands                   | No          | Gangway manufacture                         | Yes           | Loctite®                                                                  |
| 2002 | 42          | F   | Hands                   | No          | Production assembly                         | Yes           | Glues on assembly line                                                    |
| 2002 | 37          | F   | Hands                   | No          | Car mechanic                                | Yes           | Hylogrip® 2000                                                            |
| 2003 | 31          | M   | Hands                   | No          | Car assembly                                | Yes           | Loctite® 243                                                              |
| 2003 | 18          | F   | Hands                   | Yes (E)     | Beauty technician                           | Yes           | Acrylic nails                                                             |
| 2003 | 58          | M   | Hands                   | No          | Production assembly                         | Yes           | Loctite® 601                                                              |
| 2003 | 27          | M   | Hands                   | No          | Industrial flooring                         | Yes           | Flooring adhesives                                                        |
| 2004 | 37          | F   | Hands, periorbital      | No          | Beauty technician                           | Yes           | Acrylic nails                                                             |
| 2004 | 62          | M   | Hands                   | No          | Concentric pump engineer (cars)             | Yes           | Hylomar® 68344                                                            |
| 2006 | 55          | M   | Hands, face             | No          | Car manufacture                             | Yes           | Laquer containing acrylate                                                |
| 2006 | 44          | M   | Hands                   | No          | Car manufacture                             | Yes           | Loctite®                                                                  |
| 2006 | 63          | M   | Hands                   | No          | Aeroplane manufacture                       | Yes           | Loctite®                                                                  |
| 2006 | 42          | M   | Face                    | No          | Car manufacture                             | Yes           | Paints                                                                    |
| 2006 | 41          | F   | Hands                   | No          | Beauty technician                           | Yes           | Acrylic nails                                                             |
| 2007 | 45          | M   | Hands                   | No          | Machine assembly                            | Yes           | Loctite®                                                                  |
| 2007 | 42          | F   | Mouth                   | No          | Nil                                         | No            | Dental work                                                               |
| 2007 | 35          | F   | Hands                   | No          | Beauty technician                           | Yes           | Acrylic nails                                                             |
| 2008 | 54          | F   | Hands, periorbital      | No          | Sales manager                               | No            | Acrylic nails                                                             |
| 2008 | 22          | F   | Hands                   | No          | Beauty technician                           | Yes           | Acrylic nails                                                             |
| 2008 | 31          | F   | Hands, abdomen          | No          | Research with acrylates                     | Yes           | DEGDA                                                                     |
| 2008 | 66          | F   | Face                    | No          | Retired (housing renovation)                | No            | Acrylic nails                                                             |
| 2011 | 47          | F   | Hands, feet             | Yes (A)     | Retired (secretary)                         | No            | Acrylic nails                                                             |
| 2011 | 24          | F   | Hands                   | Yes (E)     | Beauty technician                           | Yes           | Acrylic nails                                                             |
| 2012 | 42          | F   | Hands                   | Yes (A)     | Social worker                               | No            | Acrylic nails                                                             |
| 2012 | 50          | F   | Mouth, facial           | No          | Housing manager                             | No            | Dental work                                                               |
| 2012 | 56          | F   | Lower legs              | No          | Retired (nurse)                             | No            | Mepilex® Border dressing                                                  |
| 2012 | 21          | F   | Hands                   | Yes (E/R)   | Beauty technician                           | Yes           | Acrylic nails                                                             |
| 2012 | 68          | F   | Legs                    | Yes (E)     | Retired (research)                          | No            | Mepilex® Border dressing, Cavilon™ barrier film, Micropore™ surgical tape |
| 2012 | 51          | F   | Hands, feet             | No          | Secretary                                   | No            | Acrylic nails                                                             |
| 2012 | 51          | F   | Hands, feet             | Yes (A/E)   | Business manager                            | No            | Dressings                                                                 |
| 2013 | 15          | F   | Hands                   | Yes (E)     | School student                              | No            | Acrylic nails, hairspray containing acrylates                             |
| 2013 | 18          | F   | Hands, feet             | Yes (A)     | Beauty technician                           | Yes           | Acrylic nails                                                             |
| 2013 | 65          | M   | Hands                   | Yes (R)     | Electronic engineer                         | No            | Perspex®                                                                  |
| 2013 | 56          | F   | Hands                   | Yes (R)     | Cashier                                     | No            | Acrylic nails                                                             |
| 2013 | 52          | M   | Hands                   | No          | Production assembly                         | Yes           | Pedometer                                                                 |
| 2013 | 17          | F   | Hands, face             | No          | College student                             | Yes           | Loctite® 121078                                                           |
| 2014 | 82          | F   | Legs                    | No          | Retired (domestic)                          | No            | Acrylic nails                                                             |
| 2014 | 42          | F   | Hands                   | Yes (A/R)   | Beauty technician                           | Yes           | Dressings                                                                 |
| 2014 | 35          | F   | Hands                   | No          | Carer                                       | No            | Acrylic nails                                                             |
| 2014 | 43          | F   | Face, chest             | Yes (E)     | Solicitor                                   | No            | Acrylic nails                                                             |
| 2014 | 68          | M   | Legs                    | No          | Retired (finance)                           | No            | Acrylic nails                                                             |
| 2014 | 75          | M   | Face, feet              | Yes (E/A/R) | Retired (surveyor)                          | No            | Dressings                                                                 |
| 2014 | 62          | M   | Legs                    | No          | Long-term unemployment secondary to illness | No            | Mepilex® Border dressing                                                  |
| 2015 | 32          | F   | Hands                   | No          | Customer service                            | No            | DryMax® Extra and Mepilex® Border dressings                               |
| 2015 | 22          | F   | Hands                   | Yes (E/R)   | Beauty technician                           | Yes           | Acrylic nails                                                             |
| 2015 | 15          | F   | Mouth                   | Yes (A)     | School student                              | No            | Acrylic nails                                                             |
| 2015 | 27          | F   | Chest, neck             | Yes (R)     | Nil                                         | No            | Braces adhesive                                                           |

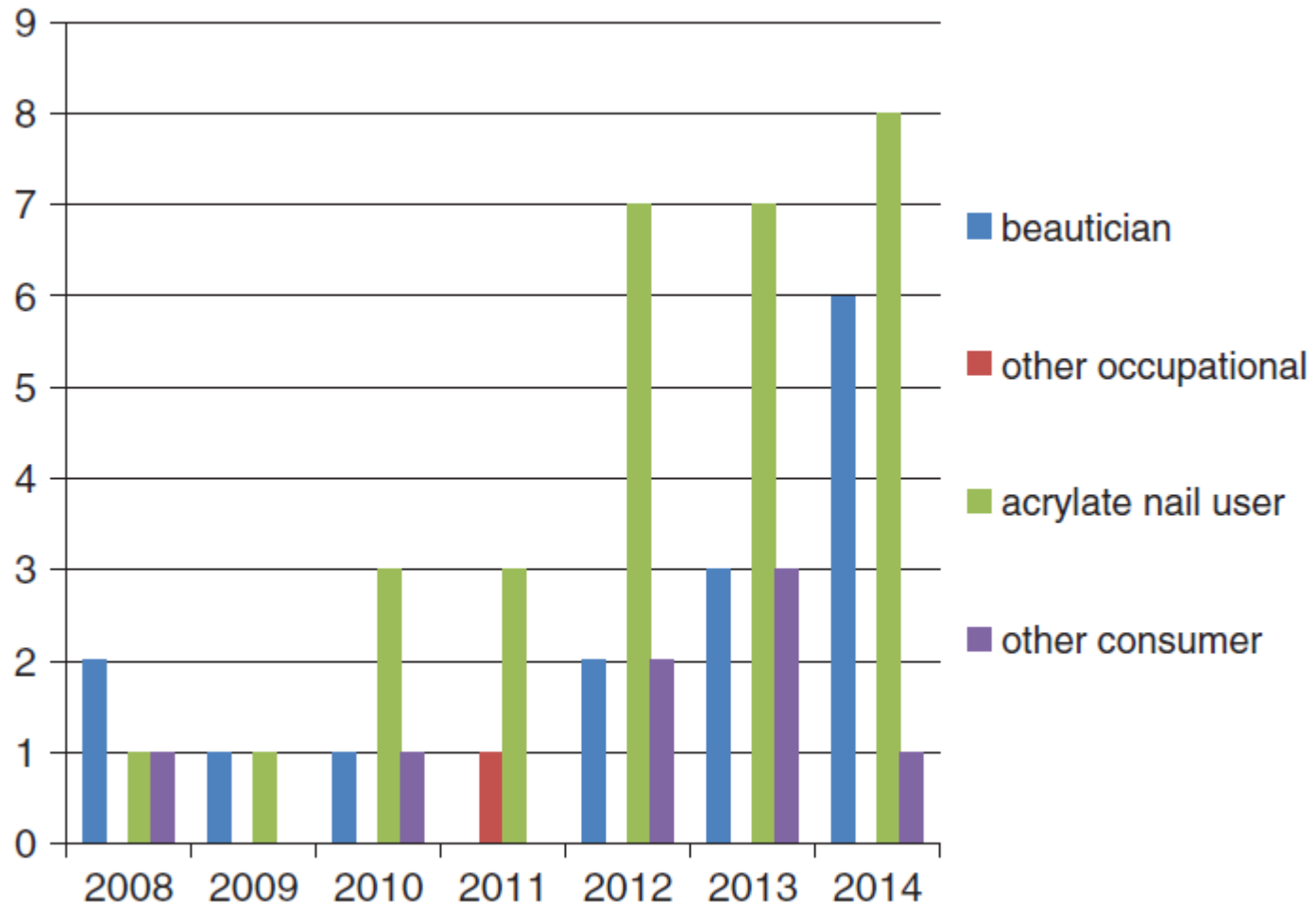
Acrylate and methacrylate contact allergy and allergic contact disease: a 13-year review

Ashley Spencer, Paul Gazzani and Donna A. Thompson

Birmingham Skin Centre, Sandwell and West Birmingham Hospitals NHS Trust, Birmingham, B18 7QH, UK

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Contact Dermatitis, 75, 157–164





Contact allergy resulting from the use of acrylate nails is increasing in both users and those who are occupationally exposed

**Rachel Montgomery<sup>1</sup>, Susan J. Stocks<sup>2</sup> and S. Mark Wilkinson<sup>1</sup>**

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*Contact Dermatitis*, **74**, 110–127







# Nagelkosmetik

- Allergien / Epidemiologie -

- In älteren Studien ein sehr häufiges, zwischenzeitlich selteneres, aber durch Acrylate wieder zunehmendes Problem
- An „dislozierte Dermatoze“ denken
- Betroffene Regionen:
  - Gesichtshaut (am häufigsten (!), besonders periorbital)
  - Hals/Nacken Region
  - Finger/Hände (Berufsdermatose)
  - äußerer Gehörgang
  - Anus und Vulva

(De Groot AC, White IR. Textbook of Contact Dermatitis, Springer 1995)





**Baseline**



**Week 16**

**Fig. 2** Sample images of patient eyelashes before and after 16 weeks of once-daily bimatoprost treatment. The patient entered the study with a baseline overall eyelash prominence assessed as moderate (grade 2) on the Global Eyelash Assessment (GEA) scale. After

**Enhanced Eyelashes: Prescription and Over-the-Counter Options**

**Aesth Plast Surg (2011) 35:116–121**



HEALTH AND BODY > BEAUTY AND PERSONAL CARE > SKIN CARE AND COSMETICS > EYELASH EXTENSIONS

## Eyelash extension safety

Eyelash extensions promise luscious lashes that last for up to six weeks – but just how safe are they?

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### Longing for longer lashes?

By **Kate Browne**  
Last updated: 25th November 2014

Walk past any beauty salon or nail bar, and it's hard to miss the advertisements for longer, fuller eyelashes that can last up to six weeks without a tube of mascara in sight.

As the festive season rolls around it's easy to see the appeal in a treatment that can have you looking as long-lashed as Bambi day after day. But there are concerns that a lack of training by those performing eyelash extensions could put the customer's eyes at risk.

CHOICE investigates this growing trend to see what it's all about, what the risks are and what to look out for if you decide eyelash extensions are for you.



# Wimpernverlängerung

## - Epidemiologische Daten -

- Web-basierte Umfrage in Japan (2000 w):
  - > 205 (10,3%) hatten mind. 1x Verlängerung
  - > 55 (26,8%) erlitten gesundheitliche Probleme

*Amano Y, Nishiwaki Y.*

*[National survey on eyelash extensions and their related health problems].*

*Nihon Eiseigaku Zasshi. 2013; 68(3): 168-74.*

- 107 Patientinnen in Japan (aus Augenkliniken):
  - > 64 erlitten eine Keratokonjunktivitis
  - > 42 erlitten eine allergische Blepharitis
  - > 3 hatten konjunktivale Erosionen
  - > 1 hatte eine subconjunctivale Hämorrhagie

*Amano Y, Sugimoto Y, Sugita M.*

*Ocular disorders due to eyelash extensions.*

*Cornea. 2012; 31(2): 121-25.*







Ethylenglycol-dimethacrylat

2-Hydroxyethylmethacrylat

Triethylenglycol-dimethacrylat

Methylmethacrylat

2-Hydroxypropylmethacrylat



# Allergic contact dermatitis caused by a cyanoacrylate-containing false eyelash glue

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*Contact Dermatitis*, **67**, 306–320

**Table 1.** Patch test results to acrylates

| Test substance                      | Concentration | D2 | D4 |
|-------------------------------------|---------------|----|----|
| Methyl methacrylate                 | 2% pet.       | +  | +  |
| N-Butyl methacrylate                | 2% pet.       | ++ | ++ |
| 2-Hydroxyethyl methacrylate         | 2% pet.       | ++ | ++ |
| 2-Hydroxypropyl methacrylate        | 2% pet.       | ++ | ++ |
| Ethylene glycol dimethacrylate      | 2% pet.       | ++ | ++ |
| Triethyleneglycol dimethacrylate    | 2% pet.       | +  | +  |
| Urethane dimethacrylate             | 2% pet.       | +  | +  |
| Tetrahydrofurfuryl methacrylate     | 2% pet.       | +  | +  |
| Tetraethyleneglycol dimethacrylate  | 2% pet.       | +  | +  |
| N,N-Dimethylaminoethyl methacrylate | 0.2% pet.     | +  | +  |
| Butyl acrylate                      | 0.1% pet.     | –  | +  |
| Ethyl methacrylate                  | 2% pet.       | +  | +  |
| Ethyl acrylate                      | 0.1% pet.     | ±  | +  |
| 2-Hydroxyethyl acrylate             | 0.1% pet.     | +  | +  |
| Triethylene glycol diacrylate       | 0.1% pet.     | –  | +  |
| Ethyl cyanoacrylate                 | 10% pet.      | ++ | ++ |

# Occupational asthma and rhinitis caused by cyanoacrylate-based eyelash extension glues

*Occupational Medicine* 2013;63:294–297

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|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Background</b>  | Eyelash extensions are applied on top of customers' lashes using instant glue containing cyanoacrylate, known to cause occupational rhinitis (OR) and occupational asthma (OA). The number of beauty professionals applying these extensions is increasing due to their popularity.                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Aims</b>        | To report on a case of OA with OR and a case of OR attributable to lash extension glue and to evaluate respiratory exposure in lash extension work.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Methods</b>     | Two beauty professionals with suspected OA and/or OR underwent inhalation challenge, including both control challenge and work-mimicking challenges using the lash extension glue, each with a 24-h follow-up. Volatile organic compounds (VOCs) present were assessed during the lash extension glue challenge. The glues were analysed for their (meth)acrylate content.                                                                                                                                                                                                                                                                                                                                 |
| <b>Results</b>     | Both beauty professionals (case 1 and case 2) applied lash extensions regularly for several hours per day as part of their work and had work-related rhinitis. Case 1 had a longer history of lash extension work and also had asthmatic symptoms. The first lash extension glue challenge was negative in both cases, but positive OR reactions were detected in the second test. Case 1 also had a late asthmatic reaction. During the lash extension glue challenge, VOC were present in total concentrations below the irritant threshold and ethylcyanoacrylate (ECA) was detected in a concentration of 0.4 mg/m <sup>3</sup> . Chemical analysis of the glues revealed ECA was the major component. |
| <b>Conclusions</b> | Application of eyelash extensions using small amounts of cyanoacrylate-based glues can cause OA and OR.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |





# Is there a good *in vivo* method to show whether gloves are sufficiently protective when a nail technician is exposed to (meth)acrylates?

## An *in vivo* pilot study

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Contact Dermatitis, **75**, 48–65

**Anna-Maria Ursberg<sup>1,2</sup>, Ola Bergendorff<sup>1</sup>, Ann-Charlotte Thorsson<sup>1</sup> and Marlène Isaksson<sup>1</sup>**

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| Gloves (commercial name)                        | Manufacturer (supplier) | Thickness (mm)* | Material                                |
|-------------------------------------------------|-------------------------|-----------------|-----------------------------------------|
| Ansell Touch N Tuff Nitrile black®              | Ansell                  | 0.12            | Nitrile                                 |
| Ansell Touch N Tuff Nitrile green®              | Ansell                  | 0.09            | Nitrile                                 |
| Ansell Touch N Tuff Dermashield Neoprene green® | Ansell                  | 0.08            | Neoprene/polychloroprene                |
| Ansell Barrier White (corresponding to 4H®)     | Ansell                  | 0.04            | Polyethylene and ethylene-vinyl alcohol |



# Acrylate

- Salze und Ester der Acrylsäure
- Gruppe der synthetischen Harze und Plastike
- Wichtige Eigenschaft: stark haftend
- Rohstoff für viele Kunststoffe
- Verwendung in Pflastern/Wundauflagen, Aufklebern, Plastik, Farben, Lacken, Zahnmaterialien



## **Eyelash extensions can pose health risks**

**The popular trend can cause allergic reactions, infections, and more**

Published: May 2013

**CR** Consumer  
Reports









## Augenbrauen- und Wimpernfarbe Strahlende Augen mit RefectoCil

Bestandteile/Ingredients: Aqua, Cetearyl Alcohol, PEG-40 Sorbitan Lanolate, Sodium Cetearyl Sulfate. Kann enthalten/may contain: Toluene-2,5-Diamine, 2-Chlor-p-Phenylendiamine, m-Aminophenole, 2,6-Diaminopyridine, m-Phenylendiamine, CI 77492, CI 77499, CI 77007, Parfum.

RefectoCil



2

p-Phenylendiamin



6 Pyrogallol

11 4 toluylendiain

p-Toluylendiain

12

4 <sup>belly aus</sup>toluyndiamin 1% mit  
TOLUYLENDIAMIN

3 3-Aminophenol

4

p-Aminophenol (CI 76550)

5

Hydrochinon

10

4 toluylendiain 1% mit 1% et



**Table 1.** The relevant results of the patch tests

| Test results                                         | D1 | D3  | D7 |
|------------------------------------------------------|----|-----|----|
| <i>p</i> -Phenylenediamine dihydrochloride 0.5% pet. | ++ | +++ | ++ |
| Caine mix (630 µg/cm <sup>2</sup> )                  | NR | ++  | +  |
| Black rubber mix (75 µg/cm <sup>2</sup> )            | NR | ++  | +  |
| Toluene-2,5-diamine sulfate 1% pet.                  | NR | +++ | +  |
| <i>o</i> -Nitro- <i>p</i> -phenylenediamine 1% pet.  | NR | +++ | +  |
| <i>p</i> -Aminophenol 1% pet.                        | NR | +++ | +  |
| <i>m</i> -Aminophenol 1% pet.                        | NR | ++  | +  |
| Hydroquinone                                         | NR | ++  | +  |

Allergic contact dermatitis presenting as severe and persistent blepharoconjunctivitis and centropacial oedema after dyeing of eyelashes

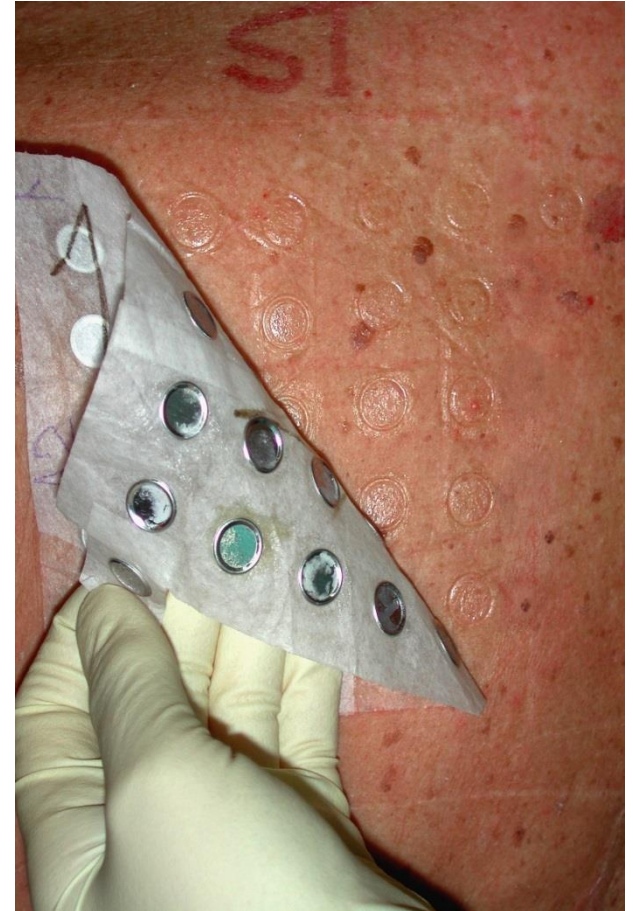
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*Contact Dermatitis*, **71**, 303–317



# ECT - Durchführung



Standardisiert !

# ECT - Komplikationen

- Irritation bis Nekrose und Narbenbildung  
(Cave: Patienten-eigenes Material -> Frosch PJ et al. Die Epikutantestung mit patienteneigenen Produkten. In: Plewig G, Przybilla B (Hrsg.): Fortschritte der praktischen Dermatologie und Venerologie. Springer, Berlin. 166-181, 1997)
- Aktive Sensibilisierung
- „Flare up“













Herzlichen Dank für Ihr  
Interesse und Ihre Geduld