

Ochsenhausen, den 20.03.2005

Liebe Abonentinnen und Abonenten,

wie schon angekündigt, bekommen Sie mit getrennter Mail 6 pdf-Dateien zum Thema "Gesundheitsrisiko Duftstoffe". Sie finden dort in der Anlage folgende Dateien:

- 1) Plakat: Parfüm - Nein Danke (Scherrmann):
- 2) 3) Duftstoffe - Nein Danke - Vorderseite und Rückseite eines Faltblattes (Scherrmann):
- 4) Gesundheitsrisiko Duftstoffe (FPIN) in deutscher Uebersetzung (zweiseitig)
- 5) Einige weitergehende Informationen
- 6) Veroeffentlichungen von UBA und BfR zu Duftstoffen

Die Weiterverbreitung der Faltblätter und des Plakates ist erlaubt und erwünscht, wenn Sie die Quellen angeben.

Beim Ausdrucken der Faltblätter gibt es evt. technische Probleme. Speziell bei Tintenstrahldruckern kann es Probleme mit der Mittigkeit und den Raendern der Spalten geben. Bei Laserdruckern geht der Ausdruck meist problemlos. Wenn Sie das Faltblatt weiterverbreiten wollen, und die von Ihnen ausgedruckte Version sich nicht als Kopiervorlage eignet, schreiben Sie bitte eine Mail an Scherrmann@safer-world.org mit Ihrer Postadresse, ich schicke Ihnen dann eine Vorlage (kostenlos) per Post zu.

Sie finden die Dateien auch auf der Site <http://www.safer-world.org/d/chem/duft/duft.htm>

Ich wollte zunaechst von meinen inzwischen weit ueber 400 Dateien in meinem Duftstoffordner die wichtigsten systematischer zusammenstellen. Das Ganze entpuppt sich jedoch als zu zeitaufwendig. Ganz so umfassend ist es nun nicht geworden. Aber ich denke, die vorliegenden Informationen geben Ihnen schon mal einen kleinen Eindruck von der Brisanz des Problems "Duft- und Riechstoffe". Leider sind die meisten Infos in englischer Sprache. Aber, selbst wenn Sie kein Englisch können, sehen Sie, dass es viele Veröffentlichungen zu den gesundheitsschädigenden Auswirkungen einzelner Substanzen gibt.

Zudem habe ich einen email-Ordner mit Fragen und den Antworten an bzw. vom UBA, BfR, BVEL, Henkel, DAAB, u. a., den ich an Privatpersonen zur Kenntnisnahme gerne weiterleite.

Dass die Duft- und Riechstoffhersteller und die damit in Zusammenhang stehende Kosmetik- und Waschmittelindustrie sehr maechtig sind, wird bis jetzt wenig von den Medien aufgegriffen und kaum oeffentlich diskutiert.

Die Vergangenheit hat in anderen Bereichen gezeigt, dass eine Selbstregulierung von Seiten der Industrie nicht klappen kann, dass dabei die Verbraucherinnen und Verbraucher und insbesondere die Kinder immer die Leidtragenden sind. So ist es zwar begruessenswert, dass die Industrie selbst Schritte unternimmt, um die schaedlichsten Substanzen nicht mehr zu verwenden und dass die EU die Deklaration von 26 Einzelsubstanzen beschlossen hat. Dies ist aber nur ein Schritt in die richtige Richtung. Es verbleiben immer noch viel zu viel krankmachende Substanzen auf der tolerierten Liste.

Ich möchte auch hier noch einmal betonen: Das Problem "Duftstoffe" verschaeft sich vor allem deswegen, weil die Beduftung in den letzten Jahren stark zugenommen hat und immer noch zunimmt. Es gibt immer weniger die Moeglichkeit, ohne permanente Beduftung zu leben.

Was mich am meisten wundert ist, dass obwohl schon so viele wissenschaftliche Erkenntnisse vorliegen, das Problem von den AerztInnen, speziell von KinderaerztInnen noch viel zu wenig wahrgenommen wird: Sie warnen meines Erachtens viel zu wenig vor parfuemierten Produkten. Auch hier zeigt sich somit, dass ein erheblicher Aufklaerungsbedarf besteht.

Ich danke vor allem Susanne von Dach, Marjo Järvinen, Barbara Wilkie (von EHN, dem Environmental Health Network of California) und Betty Bridges (Fragranced Products Information Network) fuer Übersetzungen, unermuedliche Zusammenstellung wissenschaftlicher Artikel über die gesundheitsschaedigenden Wirkungen von Duft- und Riechstoffen und ihr Engagement, die Bevoelkerung aufzuklaeren.

Ich habe alle Links kontrolliert. Trotzdem kann es sein, dass links nicht oder nicht mehr funktionieren. Falls Sie einen Link nicht oder nicht mehr finden und die site lesen wollen, geht es meiner Erfahrung nach am schnellsten, wenn Sie den ganzen Titel in eine Suchmaschine eingeben. Ich bin dankbar, wenn Sie mir den "toten" und den neuen Link zumailen.

Allen alles Gute, eine duftstofffreie Umgebung und viele Gruesse aus Oberschwaben

Ingrid Scherrmann

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email: info@safer-world.org, web: www.safer-world.org SAFER WORLD ist ein privates unabhaengiges internationales Internet-Netzwerk fuer eine gesuendere Umwelt

GESUNDHEITSRISIKO DUFT- und RIECHSTOFFE

INHALT (Seite bezieht sich auf die pdf-Datei)

Seite : Titel

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PRODUKTINFORMATIONEN

vor allem: OEKOTEST www.oekotest.de

Z.B.04.12.2000 Boss Elements, Eternity, Nightflight Joop und andere Designerdüfte schädlich! - Es weihnachtet und viele greifen zur Aftershave.

Ökotest untersuchte 32 Dufte mit verheerenden Ergebnissen. Nur 4 sind empfehlenswert.

Formaldehyd, Polymoschus und andere Substanzen wurden gesucht und gefunden -- äußerst gesundheitsschädlich.

Polymoschus, was gar nicht mehr eingesetzt werden soll, wurde bei den extremen teuren Dufte gefunden: Boss Elements, Eternity von Calvin Klein, Fahrenheit von Dior, Cool Waves von Gillette, Nightflight von Joop und Vichy Sport!

Die Dufte, die nicht im Trend liegen, haben am besten abgeschnitten. Also wer sicher schenken will, sollte folgende Dufte einpacken: Old Spice, Hattric, Tabac und Hero. Am vernünftigsten wäre es, komplett auf das Düftchen zu verzichten! ...www.oekotest.de

Es ist wirklich erfreulich, wie unermüdetlich OEKOTEST über die Gesundheitsschädlichkeit einiger Substanzen in Kosmetika aufklärt.

ab und an: Stiftung Warentest: www.stiftung-warentest.de

Umweltberatung Oesterreich <http://www.umweltberatung.at>

Dicke Luft in Innenräumen Seit einiger Zeit wird verstärkt für den Einsatz von Produkten zur Verbesserung der Raumluft und des Wohlbefindens geworben. Diese Produkte werden in Form von Sprays, Gelen, Räucherkegeln u.ä. angeboten. "die umweltberatung" warnt davor, diese Produkte zu verwenden: Duft- und Aromastoffe sind ein mögliche Ursache für Allergien und allgemeine Befindlichkeitsstörungen. Schwangere Frauen und Säuglinge sind besonders gefährdet. Presseausendung, März 2003 <http://www.umweltberatung.at>
Der Geist aus der Flasche http://images.umweltberatung.at/html/aetherische_oele-Infobl-div.pdf

Europäische Verbraucherzentrale Kiel

15.04.2003 **Immer mehr Menschen in Europa leiden an Duftstoffallergien:
Neuer Ratgeber informiert über Produkte ohne Duftstoffe**

Düfte können zum Wohlbefinden beitragen, Erinnerungen wachrufen oder über Sympathie und Antipathie entscheiden. Sie können aber auch krank machen.

Immer mehr Menschen leiden an einer Duftstoffallergie. Auf der unrühmlichen TOP 15-Hitliste der Allergien stehen auf Platz zwei hinter Nickel die Allergien gegen Duftstoffe. Allein in Deutschland sind nach Schätzungen mindestens eine Millionen Menschen betroffen.

Das Auffinden des auslösenden Stoffes gleicht meist der Suche nach der Stecknadel im Heuhaufen. Denn rund 3500 Substanzen werden in unterschiedlichen Mischungen von den Herstellern duftender Produkte in Europa verwendet.

Nach Aussage von Gudrun Köster-Sartorius vom Europäischen Verbraucherzentrum Kiel stellen Duftstoffe ein ernstzunehmendes Problem im gesundheitlichen Verbraucherschutz dar. „Dies liegt unter anderem am Überangebot von Duft in Produkten des täglichen Bedarfs sowie Raumparfüms in Wohnungen, Autos, Kaufhäusern und dem zunehmenden Einsatz von Düften zu Marketingzwecken“.

Auch die Europäische Kommission hat dieses Problem erkannt. In einer jüngst verabschiedeten Neuregelung der Kosmetikrichtlinie wurde die gesonderte Deklaration von besonders kritischen Duftstoffen beschlossen. Allerdings müssen deutsche Verbraucher aufgrund von Umsetzungs- und Übergangsfristen noch bis zu zwei Jahre warten, um in den vollständigen Genuss dieser Neuregelung zu kommen.

Schon jetzt bietet das EVZ mit einer Broschüre, die Produkte ohne Duftstoffe aus den Bereichen Körperpflege, Waschen und Putzen auflistet, betroffenen Verbrauchern eine konkrete Hilfestellung beim Auffinden derartiger Produkte an. Mehr als 300 Artikel, die laut Herstellerangaben völlig frei von Duftstoffen sind, finden Allergiker oder Menschen, die Duftstoffe aus anderen Gründen vermeiden möchten, in dieser Veröffentlichung. Ferner sind über 250 Produkte aufgeführt, bei denen auf 10 kritische Duftstoffe verzichtet wurde. In vielen Fällen können auch diese Produkte für die Betroffenen bereits eine Lösung ihres Problems darstellen.

Ergänzt wird die Liste durch zahlreiche Tipps, Adressen und Hinweise von Firmen.

Die 64-seitige Publikation kann beim EVZ Kiel gegen Einsendung von 3,30 € in Briefmarken angefordert werden: EVZ Kiel, Willestrasse 4-6, 24103 Kiel <http://www.evz.de/UNI111149692811795557/doc886A.html>

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ADRESSEN

Deutschland:

UBA: Umweltbundesamt (UBA) <http://www.umweltbundesamt.de>

3 Pressemitteilungen, auf einen Klick ueber die Suche

UMID Ausgabe: 1/2004, S. 19 ff: **UBA führte Expertengespräch zum Thema Duftstoffe**

<http://www.umweltbundesamt.de/uba-info-presse/2004/pd04-064.htm>

<http://www.umweltbundesamt.de/umid/archiv/umid0104.pdf>

Bundesinstitut für Risikobewertung

(BfR) <http://www.bfr.bund.de> Kosmetische Mittel: <http://www.bfr.bund.de/cd/242>

wenig Einträge, Sitzungsprotokolle, etc.

Bundeszentrale für gesundheitliche Aufklärung <http://www.bzga.de/>

Suche zu "Duftstoff", "Riechstoff", "Parfüem" Ergebnis: keine Treffer, Stand 15.03.2005

Verbraucherzentrale Bundesverband www.vzbv.de/

Suche zu "Duftstoff", "Riechstoff", "Parfuem" Ergebnis: keine Treffer , Stand 15.03.2005

Europäische Verbraucherzentrale Kiel <http://www.evz.de/UNIQU111149692811795557/doc84A.html>

Schweiz:

Konsumentenschutz Schweiz <http://www.konsumentenschutz.ch>

Suche zu "Duftstoff", "Riechstoff", "Parfuem" Ergebnis: keine Treffer, Stand 15.03.2005 ????

Oesterreich:

Bundesministerium für soziale Sicherheit, Generationen und Konsumentenschutz

Österreich <http://www.bmsg.gv.at/cms/site/>

Suche zu "Duftstoff", "Riechstoff", "Parfuem" Ergebnis: keine Treffer, Stand 15.03.2005

EU

Europäische Kommission - SANCO, Generaldirektion Gesundheit und Verbraucherschutz

www.europa.eu.int

Europäische Verbraucherzentrale <http://www.beuc.org>

Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten über Kosmetische Mittel 76/768/EWG (Kosmetik-Richtlinie)

http://europa.eu.int/eur-lex/de/consleg/pdf/1976/de_1976L0768_do_001.pdf

Scientific Committee on Cosmetic Products and Non-food products intended for Consumers (SCCNFP)

http://europa.eu.int/comm/health/ph_risk/committees/sccp/sccp_en.htm

Zugriff auf die Datenbank "Methodensammlung - LMBG online" <http://www.methodensammlung-lmbg.de/>

USA

National Institute of Environmental Health Sciences (NIEHS)

Common Indoor Air Pollutants, under VOCs

<http://www.niehs.nih.gov/external/faq/indoor.htm>

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MEDIEN

SPIEGEL ONLINE - 08. März 2005, 16:02 **Kosmetik-Branche - L'Oréals großer Bluff.** Von Nils Klawitter
L'Oréal ist der größte Kosmetikkonzern der Welt, der profitabelste - und auch der verschwiegenste. Die Geheimniskrämerei hat einen Grund: Die triste Realität der Pariser Chemieküche, für die Stars wie Claudia Schiffer und Beyoncé Knowles werben, würde die Traumwelt der milliardenteuren Produktinszenierungen nur stören. URL: <http://www.spiegel.de/wirtschaft/0,1518,345224,00.html>

(Falls der Link nicht mehr erreichbar ist: mail an Scherrmann@safer-world.org

Dienstag, 5. Februar 2002 **Tödlich für Babys? Warnung vor ätherischen Ölen** Ätherische Öle, die häufig als Hausmittel gegen Erkältungen angewandt werden, können für Babys und kleine Kinder lebensgefährlich werden. Das berichtete die "Ärztliche Praxis" in ihrer jüngsten Ausgabe. In konzentrierter Form inhaled, auf die Haut oder Schleimhaut aufgetragen oder geschluckt, können die Öle zu massiven Vergiftungserscheinungen führen. <http://www.n-tv.de/2901562.html>

und/oder **Ätherische Öle gegen Erkältungen Gefahr für Babys**

<http://www.netdoktor.de/nachrichten/newsitem.asp?y=2002&m=1&d=37&id=72713>

ÖKO-TEST September 95 **Kinderparfüms- Dufte Kindheit**

Die Parfüm-Hersteller haben eine neue Zielgruppe entdeckt: Sie wollen Babies und Kinder in Duftwolken hüllen. Unsere Labors fanden in den Kinderparfüms bedenkliche Duftstoffe, Vergällungsmittel und Emulgatoren.

<http://www.oekotest.de/cgi/ot/otqs.cgi?suchtext=Parfum&doc=2452>

PARFUEM - ANALYSEN

Inhaltsstoffe einzelner Parfuems:

EHN's FDA Petition Analysis: <http://www.ehnca.org/FDApetition/analysis.htm>

GreenPeace UK analyses perfumes

<http://www.greenpeace.org.uk/Products/Toxics/chemicalhouse.cfm?producttypeid=5>

FACHVORTRAG - deutsch

Verführerische Düfte - Ein Gesundheitsrisiko? Prof. Dr. Volker H. Mersch-Sundermann, Institut für Innenraum- und Umwelttoxikologie Universitätsklinikum der Justus-Liebig-Universität Gießen: Vortrag gehalten im Rahmen des Kongresses "Gesunde Raumluft" auf der Messe Bauen und Energie, Messezentrum WienNeu, 12.02.2004 ppt unter <http://www.uniklinikum-giessen.de/toxi/Vortraege.html>

RECHT

Vom Europaeischen Verbraucherzentrum, Kiel

Kosmetik: Inhaltsstoffe

Seit dem 1. Juli 1999 ist die Deklaration der Inhaltsstoffe von Kosmetika mittels einer EU-Richtlinie nach der INCI-Nomenklatur (International Nomenclature of Cosmetic Ingredients) verbindlich geregelt.

Wie auch bei den Lebensmitteln erfolgt die Angabe über die verwendeten Inhaltsstoffe in absteigender Reihenfolge der Konzentration, d.h. am Anfang stehen die Stoffe von denen das Produkt am meisten enthält. So lässt sich mancher Werbespruch gut auf seinen Wahrheitsgehalt überprüfen.

Die Stoffe, die weniger als ein Prozent am Produkt ausmachen, werden am Ende der Liste in ungeordneter Reihenfolge aufgeführt. Farbstoffe werden, mit Ausnahme der Haarfarbstoff, mit CI-Nummern (Colour-Index-Nummern) angegeben. Erscheint die Angabe "+/- CI" bedeutet dies, dass der Stoff vorkommen kann, jedoch nicht enthalten sein muß.

Ein für Allergiker noch nicht gelöstes Problem stellen die Duft- und Aromastoffe dar, die zum Teil aus bis zu 300 Einzelkomponenten bestehen können. Diese müssen nur mit der Sammelbezeichnung "Parfum" bzw. "Aroma" angegeben werden. Eine Kontrolle, um welchen Stoff es sich im Einzelnen handelt, ist also nicht möglich. Neuerdings sind jedoch 26 Duftstoffe, die besonders häufig Allergien hervorrufen, auf der Verpackung gesondert zu kennzeichnen, was für die betroffenen Verbraucher einen großen Fortschritt darstellt.

Ebenfalls problematisch ist, dass bei Pflanzenzubereitungen lediglich der lateinische Name der Gattung bzw. der Spezies aufgeführt werden muss, wobei es sich jedoch um eine Vielzahl unterschiedlicher Pflanzenbestandteile handeln kann. <http://www.evz.de/UNI111149692811795557/doc906A.html>

Nur in Englisch:

Umfassende Website: Fragrances Products Information Network: <http://www.fpinva.org>

News: <http://www.fpinva.org/new.htm>

Research <http://www.fpinva.org/Research/research.htm>

Summary of Scientific Concerns Related to Fragrance:

[Carcinogenic Activity](#)

[Environmental Concerns](#)

[The Fragrance Industry](#)

[Impact on Indoor Air Quality](#)

[Materials used in Fragrance](#)

[Neurological Aspects](#)

[Other Concerns](#)
[Regulation](#)
[Respiratory Concerns](#)
[Reproductive Worries](#)
[Safety Testing](#)
[Skin Problems](#)
<http://www.fpinva.org/Summary/summary.htm>

Toxicity Studies <http://www.ameliaww.com/fpin/toxicity.htm>

Reproductive, Fertility, and Fetal concerns http://www.ameliaww.com/fpin/reproductive_concerns.htm

Male Reproductive Concerns - Female Reproductive Concerns- Asthma and Perfumes - Research related to the asthma and perfumes. <http://www.ameliaww.com/fpin/Asthma%20&%20Perfumes.htm>

Environmental Impact and Concerns <http://www.ameliaww.com/fpin/EnvironImpact.htm>

Gesundheitsrisiko Duftstoffe (FPIN, s. o.) im Original (englisch) :
<http://www.fpinva.org/Newsletter/Fragrance%20BrochureFPIN.doc>

Weitere Website mit vielen Informationen zu Teilaspekten zu "fragrances", "scents" und "perfume":
EHN, Environmental Health Network of California: <http://www.ehnca.org/>

For example:

EHN's FDA Citizens' Petition (USA) - Docket Number 99P-1340 (with analyses, FDA contact information and complementary information) <http://www.ehnca.org/FDApetition/bkgrinfo.htm>

Scents and sensitivities What to know before buying a Valentine's Day perfume

By Francesca Lyman; Feb. 6, 2002; MSNBC CONTRIBUTOR Mirrored by EHN through kind permission of Ms. Francesca Lyman and MSNBC <http://users.lmi.net/~wilworks/FDApetition/flscents.htm>

BOOK (download)

Eva Millqvist MD, PhD Asthma and Allergy Research Group, Department of Respiratory Medicine and Allergy , Sahlgrenska University, Gothenburg, Sweden.

In The Air Be Aware - Part I

Effects of air temperature and strong scents in patients with asthma and asthma-like symptoms

This is a reduced version of my doctoral thesis from 1996. It is written in the main for persons with a medical education of some kind. The principal focus is on exercise-induced asthma and asthma-like symptoms induced by chemical irritants. During the following five years several new studies have been performed which have enhanced our knowledge in these fields. Some of this new research is presented in:

In The Air - Be Aware - Part II

Airway problems caused by strong fragrances and irritating chemical substances.

Sensory hyperreactivity - A new diagnosis

It is written for non-experts and my ambition is to present new facts and scientific knowledge in an easy way to as many people as possible.

<http://www.tilia.se/books.htm>

POLITICS - EU

Inventory of Ingredients in Cosmetic Products http://europa.eu.int/comm/food/fs/sc/sccp/out131_en.pdf

list of fragrance chemicals /Cosmetics Directive, EU

http://europa.eu.int/comm/health/ph_risk/committees/sccp/sccp_en.htm

Fragrance chemicals - some examples: perfume and aromatic raw materials Adopted by the SCCNFP during the plenary session of 24 October 2000

http://europa.eu.int/comm/health/ph_risk/committees/sccp/sccp_opinions_en.htm

Opinion concerning Musk Ketone adopted by the plenary session of the SCCNFP of 8 December 1999
http://europa.eu.int/comm/food/fs/sc/sccp/out99_en.html

Alle aufgefuehrten "Opinions" zu einzelnen Komponenten wuerden in der Schrift und Schriftgroesse dieses newsletters 17 Seiten fuellen.

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POLITICS - DAENEMARK

The Danish Environmental Protection Agency <http://www.mst.dk/>

At <http://www.mst.dk/homepage/> : Search text "fragrances": Found 35 files

Analytical methods - Mapping of chemical substances in air fresheners and other fragrance liberating products <http://www.mst.dk/chemi/01082704.htm>

Survey no. 8 – 2002: **Survey of chemical compounds in consumer products**
Contents of selected fragrance materials in cleaning products and other consumer products
Senior Scientist Suresh C. Rastogi, National Environmental Research Institute
Summary <http://www.mst.dk/chemi/01080500.htm#Summary>

Environmental and Health Assessment of Substances in Household Detergents and Cosmetic Detergent Products: Fragrances:

Potential hazard to health - Polycyclic musks- Camphene - 2-Pinene - D-Limonene – Camphor- Coumarin - Terpeneol - a -hexylcinnamaldehyde - Eucalyptus oils

<http://www.mst.dk/chemi/01080500.htm#References>
<http://www.mst.dk/chemi/01080500.htm#References>

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POLITICS - USA

NIEHS (National Institute of Environmental Health Sciences) labels fragrance chemicals as one of their Common indoor air pollutants <http://www.niehs.nih.gov/external/faq/indoor.htm>

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FRAGRANCE – MANUFACTURERS

International Fragrance Association (IFRA) The International Fragrance Association (IFRA) was founded in 1973 to represent the collective interests of the fragrance industry worldwide. Membership is open to all countries and currently comprises the national associations of fragrance manufacturers from Australia, Europe, the Far East and North and South America. Since there is no company membership in IFRA, individual fragrance companies belong to IFRA through IFRA's member associations. <http://www.ifraorg.org/>

Research Institute for Fragrance Materials (RIFM) The Research Institute for Fragrance Materials (RIFM) evaluates and distributes scientific data on the safety assessment of fragrance raw materials found in perfumes, cosmetics, shampoos, creams, detergents, air fresheners, candles and other personal and household products. RIFM's safety evaluation process is modeled after the National Academy of Sciences Elements of Risk Assessment and Risk Management and all of RIFM's scientific findings are evaluated by an independent, scientific Expert Panel (REXPAN)—an international group of dermatologists, pathologists, toxicologists and environmental scientists. <http://www.rifm.org>

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PUBLICATIONS

Online-search:

PUBMED: <http://www.ncbi.nlm.nih.gov>

Environmental Health Perspectives: <http://ehp.niehs.nih.gov/>

Google.scholar <http://www.scholar.google.com/>

Google.alert: <http://www.google.de/alerts?hl=de>

Pharmaceuticals and Personal Care Products in the Environment: Agents of Subtle Change?

Environmental Health Perspectives, Volume 107, Supplement 6, December 1999

<http://ehp.niehs.nih.gov/members/1999/suppl-6/907-938daughton/daughton-full.html>

AromaticsOnline – FAQs: " ... **The main aromatics are benzene, toluene and the xylenes; they are used as starting materials for a wide range of consumer products. ...**" <http://www.aromaticsonline.net/FAQintro.html>

Children's Environmental Health Coalition: **Fragrance in Perfumes and Cosmetics** By Pamela Lundquist

"...Perfume consists mostly of chemicals called volatile organic compounds, or VOCs. We smell fragrance chemicals because they become airborne due to their volatility. While some may enjoy the wafting fragrance of a well-perfumed person passing by, the chemicals may irritate others, especially in tight spaces, like an elevator. Perfume can be a trigger for asthmatics and migraine and sinus headache sufferers, for example. And children, since they are closer to the ground, are more likely to inhale VOCs as they fall through the air. ..."

http://www.checnet.org/healthhouse/education/articles-detail.asp?Main_ID=509

Ecology Center, Berkeley, California **The True Cost of Petroleum - Body Map**

<http://www.ecologycenter.org/erc/petroleum/body.html>

Health Care Without Harm – Fragrances <http://www.noharm.org/pesticidesCleaners/Fragrances>

Chemical used in perfumes can damage sperm http://www.NotTooPretty.org/ms_fr_spermdamage.htm

Scents & Sensitivity. This article was published in Environmental Health Perspectives, the research journal of the National Institute of Environmental Health Sciences.

<http://members.aol.com/enviroknow/perfume/EHPscents.htm>

Residues of Fossil Fuels (Aromatic Hydrocarbons) Increase Allergic Responses Breathing Easier

<http://members.aol.com/DonationDrive/AHandAllergicResponse.html>

Toxic Effects Of Air Freshener Emissions. Arch Environ Health 1997 Nov-Dec;52(6):433-41. Anderson RC, Anderson JH Anderson Laboratories, Inc., West Hartford, Vermont 05084, USA

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9541364

Information about the ingredients and hazards of air fresheners

<http://www.epa.gov/grtlakes/seahome/housewaste/house/airfresh.htm>

Allergy 1999 May;54(5):495-9 **Provocations with perfume in the eyes induce airway symptoms in patients with sensory hyperreactivity.** Millqvist E, Bengtsson U, Lowhagen O Asthma and Allergy Centre, University of Gothenburg, Sahlgrenska University Hospital, Sweden.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10380782&dopt=Abstract

Allergy 1998 Dec;53(12):1208-12 **Sensory hyperreactivity--a possible mechanism underlying cough and asthma-like symptoms.** Millqvist E, Bende M, Lowhagen O, Asthma and Allergy Centre, University of Gothenburg, Sahlgrenska University Hospital, Sweden.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9930599&dopt=Abstract

Allergy 2000 Jun;55(6):546-50. **Cough provocation with capsaicin is an objective way to test sensory hyperreactivity in patients with asthma-like symptoms.** Millqvist E

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10858985&dopt=Abstract

Allergy 1996 Jun;51(6):434-9 **Placebo-controlled challenges with perfume in patients with asthma-like symptoms.** Millqvist E, Lowhagen O Asthma and Allergy Centre, Sahlgrenska University Hospital, Gothenburg, Sweden.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8837670&dopt=Abstract

Perfumes cause allergies - The study concluded that the number of eczema patients with perfume allergy has doubled since 1979 from one in twenty eczema patients to one in ten in 1995. ..."

<http://www.gina.antczak.btinternet.co.uk/CU/CUNews.HTM#article1>

Are Chemical Health Hazards Hiding in Make-Up? The Breast Cancer Fund's Press Releases

<http://www.breastcancerfund.org/site/apps/nl/content.asp?c=kwKXLdPaE&b=86181&ct=90477>

Science 1979 May 11;204(4393):633-5

Neurotoxic fragrance produces ceroid and myelin disease. Spencer PS, Sterman AB, Horoupian DS, Foulds
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2389677&dopt=Abstract

Acta Neuropathol (Berl) 1990;80(2):129-37 **Cerebellar degeneration induced by acetyl-ethyl-tetramethyl-tetralin(AETT).** Akasaki Y, Takauchi S, Miyoshi K Department of Neuropsychiatry, Hyogo College of Medicine, Nishinomiya-shi, Japan.
<http://www.chem-tox.com/pregnancy/perfume.htm>

Fragrance Exposure Causes Aggression Hyperactivity and Nerve Damage *Neurotoxicology, Volume 1:221-237, 1979.* <http://www.chem-tox.com/pregnancy/perfume.htm>

19 August, 2002, UK **French perfumers in a stink** The EU wants perfumers to list all ingredients used France's perfume producers are up in arms over a recent European Parliament directive which would force them to disclose the secrets of their centuries-old craft.

http://news.bbc.co.uk/1/hi/not_in_website/syndication/monitoring/media_reports/2202835.stm xxx

Volume 360, Number 9341 19 October 2002 Lancet 2002; 360: 1233-42 Review: **Air pollution and health.** Bert Brunekreef, Stephen T Holgate Institute for Risk Assessment Sciences, Utrecht University, PO Box 80176, 3508 TD Utrecht, Netherlands (Prof B Brunekreef PhD); and RCMB Division, School of Medicine, Southampton General Hospital, Southampton, UK (Prof S T Holgate MD)

A new era of air pollution research. Pollutants of current interest: ozone, particulates, nitrogen dioxide
Main findings from epidemiological studies Particulate air pollution is a mixture of solid, liquid, or solid and liquid particles suspended in the air. The size of suspended particles varies, from a few nm to tens of µm. The largest particles (coarse fraction) are mechanically produced by attrition of larger particles. Small particles (<1 µm) are largely formed from gases, the smallest (<0.1 µm, ultrafine) of which are formed by nucleation resulting from condensation or chemical reactions that form new particles. In practical terms, a distinction is made between PM10 ("thoracic" particles smaller than 10 µm in diameter that can penetrate into the lower respiratory system), PM2.5 ("respirable" particles smaller than 2.5 µm that can penetrate into the gas-exchange region of the lung), and ultrafine particles smaller than 100 nm which contribute little to particle mass but which are most abundant in terms of numbers and offer a very large surface area, with increasing degrees of lung penetration.

http://www.uta.edu/ese/evse5310/exam2_essay/Air%20Pollution%20and%20Health%20--Lancet.pdf

Week of Dec. 9, 2000; Vol. 158, No. 24 **Lemon-scented products spawn pollutants** by Janet Raloff
While prepping for holiday guests, many hosts will deploy cleaners and air fresheners that impart a pleasant lemon or pine scent. Though they can mask stale smells, their fragrant ingredients-under certain conditions-may also be a rich source of indoor pollution, a study finds....

<http://www.sciencenews.org/20001209/fob7.asp>

References & Sources <http://www.sciencenews.org/20001209/fob7ref.asp>

1: Occup Med (Lond) 2002 Feb;52(1):13-6 **Fragrance as an occupational allergen.** Buckley DA, Rycroft RJ, White IR, McFadden JP. St John's Institute of Dermatology, St Thomas' Hospital, London SE1 7EH, UK.
Sensitization to fragrance is believed to occur mainly outside the workplace. This study addresses the frequency of fragrance allergy in patch test patients of differing occupations during a 15 year period. The occupation most strongly associated with fragrance allergy in both sexes was health care work (positive tests in 11.7% of males and 10.4% of females). Retired individuals also had high rates of fragrance allergy (11.6% of males and 14.5% of females), and the prevalence of sensitization increased with advancing age. Health care workers and metalworkers had statistically significantly higher rates of allergy to eugenol than did workers in other occupations. Food handlers had significantly higher rates of allergy to cinnamal and cinnamic alcohol. These findings suggest that sensitization to fragrance occurs more frequently in an occupational setting than is generally understood and could have implications for preventive measures.

PMID: 11872789 [PubMed]

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11872789&dopt=Abstract

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MORE ABOUT SOME SPECIAL SUBSTANCES
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CRESOL

Cresol, a highly caustic, colorless solid or liquid with a sweet tarry odor, is used mainly as a disinfectant. Cresol is very corrosive to all tissues. When it comes in contact with the skin it may not produce any burning sensation immediately. Prickling and intense burning will occur followed by loss of feeling. If cresol contacts the eyes it may cause extensive damage. Cresol vapors and liquids are absorbed through inhalation and eye and skin contact. Repeated or prolonged exposure to low concentrations of cresol can produce chronic systemic poisoning. Symptoms of poisoning include vomiting, difficulty in swallowing, diarrhea, loss of appetite, headache, fainting, dizziness, mental disturbance and skin rash. Cresol attacks the central nervous system, respiratory system, liver, kidneys, skin and eyes.

<http://www.epa.gov/grtlakes/seahome/housewaste/house/cresol.htm>

m-Cresol Pathway Map

This pathway was started by Keiko Sakai, Matt Rowley, and Priti Gairola and was completed by Stephen Stephens, University of Minnesota.

Cresol is a mixture of o-, p-, and m-cresol, and is obtained from coal tar or petroleum. These isomers are used as a disinfectants, textile scouring agents, surfactants and as intermediates in the manufacture of salicylaldehyde, coumarin, and herbicides. Creosote is a less refined petrochemical mixture containing cresol. It is used as a fungicide and a wood preservative for railroad ties, telephone poles, and marine pilings. Despite their chemical similarity, cresol isomers are degraded by bacteria through different pathways.

http://umbbd.ahc.umn.edu/mcr/mcr_map.html

METHYL EUGENOL

Perfume and aromatic raw materials. Adopted by the SCCNFP during the plenary session of 24 October 2000
Common Name: METHYL EUGENOL, EINECS No.: 202-223-0, CAS Registry No: 93-15-2, Chem. Name: 4-Allylveratrole; 1,2-Dimethoxy-4-(2-propenyl)-benzene.

Flavor fears. New information reveals widespread exposure to methyleugenol, a flavoring agent that may well be carcinogenic to humans. Whether you intend to or not, chances are you will consume approximately 6 micrograms of methyleugenol (ME) today, according to a report in this month's issue by Dana B. Barr and colleagues of a study designed to measure ME in human blood serum [EHP 108:323-328]. ME is a compound that occurs naturally in a variety of spices and herbs, including clove oil, nutmeg, allspice, and walnuts. In both its natural and synthetic forms, it is an FDA-approved additive, and it is widely used as a flavoring agent in desserts, condiments, and cigarettes, as an attractant in insecticides, and as a fragrance in perfumes and soaps.

Because of its structural similarity to other flavorants that are known to be carcinogenic such as safrole and estragole, ME has come under suspicion of carcinogenicity. Recent research, some of which was conducted by the National Toxicology Program at the NIEHS, has shown clearly that ME causes cancer in laboratory rodents and suggests that it may be a human carcinogen as well. To accurately evaluate the level of risk associated with a compound, both toxicologic and human exposure data are required. ...

<http://ehpnet1.niehs.nih.gov/docs/2000/108-4/ss.html#me>

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Environmental Health Perspectives Volume 108, Number 4, April 2000 **Levels of Methyleugenol in a Subset of Adults in the General U.S. Population as Determined by High Resolution Mass Spectrometry.** Dana B. Barr,¹ John R. Barr,¹ Sandra L. Bailey,¹ Chester R. Lapeza, Jr,¹ Michelle D. Beeson,¹ Samuel P. Caudill,¹ Vincent L. Maggio,¹ Arnold Schechter,² Scott A. Masten,² George W. Lucier,² Larry L. Needham,¹ and Eric J. Sampson¹ <http://ehp.niehs.nih.gov/members/2000/108p323-328barr/108p323.pdf>

MUSK

Syntetisk musk - Nitromusks

- 1) Baur musk, musk xylool, Musk B, Musk Baur, xylene musk, tonquinol (CAS-nummer 81-15-2)
- 2) Musk ketone, synthetic musk ketone, Musk C, almiscar cetona, keton-muskus, musk cetona, musk cetone, muschio chetone (CAS-nummer: 81-14-1)
- 3) Musk ambrette, synthetic musk ambrette, artificial musk ambrette, benzene, 2,6-Dinitro -3-methoxy-4-tert-butyltoluene, dinitroanisole (CAS-nummer 83-66-9)
- 4) Musk Tibetene (CAS-nummer 145-39-1)
- 5) Musk moskene, moskene (CAS-nummer 116-66-5)

Polycyclic musks AHTN, HHCB and ATTN

1. AHTN = 6-Acetyl-1,1,2,4,4,7-hexamethyltetraline
2. HHCB = 1,3,4,6,7,8-hexahydro-4,6,6,7,8,8-hexamethylcyclopenta-gamma-2-benzopyran and related isomers
3. ATTN Versalide (R) ; Musk 36 A

Int J Hyg Environ Health 2001 May;203(4):293-9 **Evaluation of health risks caused by musk ketone.**

Schmeiser HH, Gminski R, Mersch-Sundermann V. Institute of Microbiology and Hygiene, Faculty of Clinical Medicine Mannheim, University of Heidelberg, P.O. Box 100023, D-68135 Mannheim, Germany. PMID: 11434209 [PubMed - indexed for MEDLINE]

Abstract: Among the nitro musks, musk ketone (MK) as a synthetic compound with a typical musk odor is widely used in cosmetics. In the European Community the total amount used in fragrances has been reported to be 110 tons/a. Additionally, relevant amounts of MK are used in Indian joss sticks. As a result of its inherently low biodegradability MK has been detected in the aquatic environment (surface water, sediments, edible fish). Moreover, it has been shown that MK concentrates in human fatty tissue and breast milk, indicating that humans are constantly exposed. Several studies provided convincing evidence of lack of a genotoxic potential for MK. However, MK was identified as a strong inducer of phase I enzymes in rodents and a cogenotoxicant in vitro in human derived cells in rather low doses, suggesting that exposure to MK might increase the susceptibility to health hazards caused by carcinogens in humans.

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11434209&dopt=Abstract

Mutat Res 2001 Aug 22;495(1-2):89-96

Musk ketone enhances benzo(a)pyrene induced mutagenicity in human derived Hep G2 cells. Mersch-Sundermann V, Schneider H, Freywald C, Jenter C, Parzefall W, Knasmüller S. Department of Toxicology and Ecotoxicology, FB VI, University of Trier, 54286 Trier, Germany.

Abstract: Musk ketone is a widely used artificial fragrance which has been identified in human fatty tissue and milk. The mutagenic and comutagenic effects of this compound were studied in micronucleus tests with a human derived hepatoma cell line (Hep G2). Exposure of the cells to MK alone in the range between 5 and 5000 ng/ml did not cause induction of MN. When the cells were treated simultaneously with MK (5-5000 ng/ml) and 0.2 microg/ml benzo(a)pyrene, no synergistic effects were detected; benzo(a)pyrene (B(a)P) itself caused a 1.5-fold increase of MN over the spontaneous background frequency (60 versus 39 MN/1000 binucleated cells). In a third experimental series, the cells were pretreated with MK for 28h and subsequently exposed to 0.2 microg/ml B(a)P. In this case, a pronounced comutagenic effect was observed: The LOAEL for MK was 0.05 microg/ml. With higher doses (0.5, 1.0 and 5.0 microg MK/ml), a significant increase of B(a)P induced MN frequencies was measured, the induction rates being 50, 66, and 88%, respectively. Additional measurements of 7-ethoxyresorufin deethylase indicated that MK induces cytochrome P450 isoenzymes (1A1) which play a key role in the activation of B(a)P. The results of the present study show that MK amplifies the genotoxic effects of B(a)P in human derived cells and indicate that exposure of humans to MK might increase their susceptibility to the health hazards of B(a)P and other polycyclic aromatic hydrocarbons. PMID: 11448646 [PubMed - indexed for MEDLINE]

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11448646&dopt=Abstract

Opinion concerning Musk Ketone adopted by the plenary session of the SCCNFP of 8 December 1999

On review of the information presently available, it is the opinion of the SCCNFP that Musk Ketone can be safely used in cosmetic products, excluding oral care products, up to a maximum daily absorbed dose of about 14 mg/kg/day.

The opinion that consumer exposure to Musk Ketone should be reduced is based on the findings of long retention of the substance in human fat and its excretion in human milk.

Long term toxicity studies are needed.

It is estimated that exposure to Musk Ketone from cosmetic use is about 200 mg/kg/day. This equates to about 28 mg/kg/day absorbed.

It is recommended that exposure to Musk Ketone should be reduced to about 14 mg/kg/day (theoretically absorbed dose). This can be achieved following the same approaches as suggested for Musk Xylene.

The above has been formulated only on review of the cosmetic use of Musk Ketone. For the full safety assessment of Musk Ketone, it is necessary to consider other sources of consumer exposure from non-food products e.g., laundry products.

http://europa.eu.int/comm/health/ph_risk/committees/sccp/sccp_opinions_en.htm

Musk Xylene, a common synthetic fragrance chemical is found in blood samples from the general population. Coumarin, which has been banned for use in foods because of reports of hepatotoxicity in rodents is still a commonly used fragrance chemical. This study shows there is systemic absorption of coumarin through the skin. d-Limonene when oxidized forms strong contact allergens. This study investigates the occurrence of contact allergy to oxidized limonene in the air. 1-8-cineol is absorbed from the air and is detected in the blood. Asthma like symptoms are triggered by perfumes in this blinded study.
<http://www.ameliaww.com/fpin/research.htm>

Nitromusks Musk Xylol, Musk Ketone, Musk Ambrette, Musk Tibetene, Mosken/Musk moskene
<http://www.shenet.se/ravaror/mysksyntetika.html>

Norway - study on fragrance air pollution Kallenborn R, et al. **Gas chromatographic determination of synthetic musk compounds in Norwegian air samples**, Journal of Chromatography A, 846 (1999) 295-306 from "References concerning polycyclic musk fragrances"
<http://www.usf.uni-osnabrueck.de/~schwartz/fragrances.html>

Toxicol Appl Pharmacol 1984 Sep 30;75(3):571-5 **Neurotoxic properties of musk ambrette.**
Spencer PS, Bischoff-Fenton MC, Moreno OM, Opdyke DL, Ford RA .
Musk ambrette (2,6-dinitro-3-methoxy-4-tert-butyltoluene), a nitro-musk compound widely used as a fixative in fragrance formulations and found to a lesser degree in flavor compositions, produces hindlimb weakness when administered in the diet or applied to skin of rats for periods up to 12 weeks. Underlying neuropathologic changes consist of primary demyelination and distal axonal degeneration in selected regions of the central and peripheral nervous system. Murine neurological disease induced by musk ambrette occurs at doses well above estimated maximum daily human exposure. Lifetime experimental neurotoxicology studies using lower concentrations of musk ambrette for prolonged periods would be needed for the estimation of human risk.
PMID: 6474483 [PubMed - indexed for MEDLINE]
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6474483&dopt=Abstract

AETT 1: Science 1979 May 11;204(4393):633-5 **Neurotoxic fragrance produces ceroid and myelin disease.**
Spencer PS, Serman AB, Horoupian DS, Foulds MM
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2389677&dopt=Abstract

Acta Neuropathol (Berl). 1990;80(2):129-37.

Cerebellar degeneration induced by acetyl-ethyl-tetramethyl-tetralin(AETT). Akasaki Y, Takauchi S, Miyoshi K. Department of Neuropsychiatry, Hyogo College of Medicine, Nishinomiya-shi, Japan.
The neurotoxicity of acetyl-ethyl-tetramethyl-tetralin (AETT) was investigated following its percutaneous administration to rats. Animals exposed to a high-dose of AETT developed a gait abnormality that progressed to severe ataxia. Microscopic examinations revealed remarkable cerebellar changes in addition to a widespread accumulation of ceroid-like pigmentation in the neuronal cytoplasm. The cerebellar changes, especially in the vermis and intermediate part, were characterized by selective degeneration and depopulation of Purkinje cells, and a spongy state of the cerebellar white matter, which was formed in splits in the intraperiod lines within the myelin sheath. In contrast, there were only negligible changes of granule cells and other neuronal elements. Accumulation of ceroid-like pigments and selective damage to the Purkinje cells seen in the present study together provide a basis for understanding the pathogenesis of AETT intoxication and distinguish it from other experimentally induced conditions. Thus, high-dosage AETT intoxicated rats may constitute a new experimental model of cerebellar degeneration.
PMID: 2389677 [PubMed - indexed for MEDLINE]
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2389677&dopt=Abstract

Although AETT was subsequently removed from consumer products, it dramatizes the potential for neurotoxic compounds to be allowed in public use as it took 22 years before the problem was acknowledged and corrected. Because of the ubiquitous nature of fragrance compounds and their close source contact to the individual, and therefore the embryo and fetus, a cautious attitude concerning fragrance compounds during pregnancy should be maintained.

1: Environ Res 2001 Dec;87(3):123-30 **Nitromusk compounds in women with gynecological and endocrine dysfunction.** Eisenhardt S, Runnebaum B, Bauer K, Gerhard I.

WHO Collaborating Centre for Research in Gynecological Endocrinology, Department for Gynecological Endocrinology and Reproduction, University Hospital of Obstetrics and Gynecology, Voss-Strasse 9, Heidelberg, 69115, Germany.

Musk xylene (MX), musk ketone (MK), musk ambrette, musk moskene, and musk tibetene are synthetic fragrances. Between 1994 and 1996 these five nitromusk compounds (NMCs) were tested in the blood of 152 women who consulted the Endocrinological Department of the University Hospital of Obstetrics and Gynecology, Heidelberg, Germany, because of gynecological problems. The testing was conducted by gas chromatography with mass-specific detector and mass spectrometry in a retrospective cross-sectional study. MX was detected in 95% and MK in 85% of the blood samples (>20 ng per liter whole blood). The median concentration of MX was 65.5 ng/L and the maximum level of MX was 1183 ng/L; the corresponding values for MK were respectively 55.5 and 518 ng/L. The other three NMCs were found in only a few patients or not at all. Significant associations between MX and MK concentrations were found in blood and different clinical parameters of the endocrine system. MX and MK may act centrally as a disrupter of the (supra-)hypothalamic-ovarian axis, which may result in a mild ovarian insufficiency. On the basis of our data, a reproductive toxicity and an endocrine effect of NMCs in women cannot be ruled out. Further experimental and clinical studies should be conducted.

PMID: 11771925 [PubMed - indexed for MEDLINE]

http://www.ncbi.nlm.nih.gov/80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11771925&dopt=Abstract

TOLUENE

Pharmacol Toxicol. 2000 Jul;87(1):11-7.

Four weeks' inhalation exposure of Long Evans rats to 4-tert-butyltoluene: effect on evoked potentials, behaviour, and brain neurochemistry. Lam HR, Ladefoged O, Ostergaard G, Hass U, Lund SP, Simonsen L. Institute of Food Safety and Toxicology, Danish Veterinary and Food Administration, Soborg. hrl@fdir.dk Long-lasting central nervous system (CNS) neurotoxicity of 4-tert-butyltoluene (TBT) has been investigated using electrophysiology, behaviour, and neurochemistry in Long Evans rats exposed by inhalation to 0, 20, or 40 p.p.m. TBT 6 hr/day, 7 days/week for 4 weeks. Flash evoked potentials and somatosensory evoked potentials were not affected by TBT. In Auditory Brain Stem Response there was no shift in hearing threshold, but the amplitude of the first wave was increased in both exposed groups at high stimulus levels. Three to four months after the end of exposure, behavioural studies in Morris water maze and eight-arm maze failed to demonstrate any TBT induced effects. Exposure was followed by a 5 months exposure-free period prior to gross regional and subcellular (synaptosomal) neurochemical investigations of the brain. TBT reduced the NA concentration in whole brain minus cerebellum. Synaptosomal choline acetyltransferase activity increased and acetylcholinesterase activity was unchanged suggesting increased synaptosomal ability for acetylcholine synthesis. The relative and total yield of synaptosomal protein was reduced suggesting reduced density and total number of synapses in situ, respectively. We hypothesise that a reduced yield of synaptosomal protein reflects a more general effect of organic solvent exposure on the software of the brain. The synaptosomal concentration per mg synaptosomal protein and the total amount of 5-hydroxytryptamine were not affected whereas the total amount of synaptosomal noradrenaline decreased. The concentration and the total amount of synaptosomal dopamine decreased. The noradrenergic and dopaminergic parts of CNS may be more vulnerable to TBT than the serotonergic, and these long-lasting effects may cause or reflect TBT- compromised CNS function.

PMID: 10987210 [PubMed - indexed for MEDLINE]

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8936554&itool=iconabstr

TURPENTINE/ TERPENES

NIOSH Manual of Analytical Methods (NMAM), Fourth Edition

NAMES AND SYNONYMS:

- (1) limonene, d-,l-: cinene
- (2) -pinene: 2-pinene
- (3) -pinene: nopinene, pseudopinene
- (4) 3-carene: isodiprene

Criteria document for exposure limits: **Turpentine/terpenes (|-pinene, |-pinene, ||3|-carene)**

Authors: Söderkvist P

Corporate Name: Arbetsmiljöinstitutet

Source: Arbetarskyddsstyrelsen, Publikationsservice, 171 84 Solna, Sweden, 1987. 35p. 50 ref.

Abstract: Literature survey on turpentine as background for discussion of occupational exposure limits. The monoterpenes are the major components in turpentine. They are also present in the gases liberated during sawing or processing of fresh wood and possibly in the fumes occurring during soldering with colophony-containing soldering flux. Turpentine is irritating to the skin and prolonged exposure may result in allergic contact dermatitis. Long-term exposure to sawmill fumes produces chronic lung function impairment. The sensitising properties of turpentine on skin and airways and the obstructive lung function impairment are suggested as bases for the discussion of occupational exposure limits. <http://www.cdc.gov/niosh/nmam/pdfs/1552.pdf>

Common Name: **TURPENTINE, OIL**

EINECS No.: 232-350-7

CAS Registry No: 8006-64-2

Chem. Name: Turpentine, oil.

Turpentine oil with all its constituents can be found from the list of EU's fragrance chemicals - a LONG list.

http://europa.eu.int/comm/health/ph_risk/committees/sccp/sccp_opinions_en.htm

Several studies state that turpentine and constituents may act as sensitizers and irritants, also to the eyes and the respiratory system! "In the wood industry and in the indoor air of nonindustrial environments, monoterpenes are thought to be one of the causative agents for irritation symptoms."

Any of the volatile predominately terpenic fractions or distillates resulting from the solvent extraction of, gum collection from, or pulping of softwoods. Composed primarily of the C₁₀H₁₆ terpene hydrocarbons: Alpha-pinene, Beta-pinene, limonene, 3-carene, camphene. May contain other acyclic, monocyclic, or bicyclic terpenes, oxygenated terpenes, and anethole. Exact composition varies with refining methods and the age, location, and species of the softwood source.

Restrictions: the Turpentine oil should only be used when the level of peroxides is kept to the lowest possible level, for instance by adding antioxidants at the time of production.

Maximum peroxides content 10 mmoles/liter

Evaluation of sensory irritation of DELTA3-carene and turpentine, and acceptable levels of monoterpenes in occupational and indoor environment.

Authors: KASANEN J-P, PASANEN A-L, PASANEN P, LIESIVUORI J, KOSMA V-M, ALARIE Y

Department of Environmental Sciences, University of Kuopio, FIN-70211, Kuopio, Finland.

Source: JOURNAL OF TOXICOLOGY AND ENVIRONMENTAL HEALTH PART A; 57 (2). 1999. 89-114.

Abstract:

The standard mouse bioassay was used for obtaining the RD₅₀ (i.e., the concentration that causes a 50% decrease in respiratory frequency) and for estimating the irritation properties of d-DELTA3-carene (i.e., (+)-DELTA3-carene) and commercial turpentine. The chemicals studied possess mainly sensory irritation properties similar to the previously studied monoterpenes, pinenes. The irritation potency of d-DELTA3-carene (RD₅₀ = 1345 ppm) was almost equal to that of d-pinenes. Thus, d-DELTA3-carene inly d-DELTA3-carene, l-beta-pinene, alpha-pinenes, and limonenes), the RD₅₀ (1173 ppm) was the same order of magnitude as those of d-pinenes and d-DELTA3-carene. Apparently, d-monoterpenes are responsible for the sensory irritation caused by turpentine. In the wood industry and in the indoor air of nonindustrial environments, monoterpenes are thought to be one of the causative agents for irritation symptoms. The occupational exposure limit (OEL) of turpentine (100 ppm in Finland)

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10344226&dopt=Abstract

Any of the volatile predominately terpenic fractions or distillates resulting from the solvent extraction of, gum collection from, or pulping of softwoods. Composed primarily of the C₁₀H₁₆ terpene hydrocarbons: ?-pinene, ?-pinene, limonene, 3-carene, camphene. May contain other acyclic, monocyclic, or bicyclic terpenes, oxygenated terpenes, and anethole. Exact composition varies with refining methods and the age, location, and species of the softwood source.

Restrictions: the Turpentine oil should only be used when the level of peroxides is kept to the lowest possible level, for instance by adding antioxidants at the time of production. Maximum peroxides content 10 mmoles/liter

Lemon-scented products spawn pollutants by Janet Raloff

While prepping for holiday guests, many hosts will deploy cleaners and air fresheners that impart a pleasant lemon or pine scent. Though they can mask stale smells, their fragrant ingredients—under certain conditions—may also be a rich source of indoor pollution, a study finds

Rutgers Univ. chemists found that lemon- and pine-scented cleaners react with ozone to create microscopic particles that can be inhaled deeply into the lungs. The resulting "indoor smog" can aggravate health conditions. Science News Online, Dec. 9, 2000: <http://www.sciencenews.org/20001209/fob7.asp>

1: Contact Dermatitis 1997 Apr;36(4):201-6

Contact allergy to oxidized d-limonene among dermatitis patients. Karlberg AT, Dooms-Goossens A Department of Occupational Health, National Institute for Working Life, Solna, Sweden.

d-Limonene, obtained as a by-product from the citrus juice industry, was introduced on the market as a more environmentally friendly defatting and cleaning agent than the traditionally used organic solvents. Autoxidation of d-limonene readily occurs to give a variety of oxygenated monocyclic terpenes that are strong contact allergens. The aim of the present study was to investigate the prevalence of contact allergy to air exposed d-limonene among dermatitis patients. A fraction consisting of d-limonene hydroperoxides was also tested. Screening with oxidized d-limonene will detect cases of allergic contact dermatitis. Additional cases were detected when testing with the fraction of limonene hydroperoxides. The proportion of positive patch test reactions to oxidized d-limonene was comparable to that seen for several of the allergens within the standard series. An increased use of d-limonene containing allergenic oxidation products in industry where high concentrations are used, as well as in domestic exposure, might result in contact sensitization and dermatitis. Patients reacting to d-limonene often reacted to fragrance mix, balsam of Peru and colophony in the standard series.

PMID: 9165203, UI: 97307977

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9165203&dopt=Abstract

1: J Am Acad Dermatol 2002 Nov;47(5 Pt 1):709-714 Related Articles, Links

Oxidized citrus oil (R-limonene): A frequent skin sensitizer in Europe.

Matura M, Goossens A, Bordalo O, Garcia-Bravo B, Magnusson K, Wrangsjo K, Karlberg AT.

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BACKGROUND: Peel oil from citrus fruits consists of R-(+)-limonene, which is one of the most commonly used fragrance materials in technical products and in fine fragrances. This substance forms allergenic oxidation products during handling and storage. **OBJECTIVE:** We wanted to study the frequency of allergic reactions to oxidized R-(+)-limonene in patients with dermatitis and find a suitable test preparation. **METHOD:** Patch testing with oxidized R-(+)-limonene was performed on 2273 patients at 4 dermatology clinics in Europe. **RESULTS:** Of the consecutive patients tested, 3.8% to 3.9% had positive reactions in two of the clinics; 6.5% had positive reactions in the third clinic; and 0.3% had positive reactions in the fourth clinic. A total of 63 patients showed positive reactions. In total, 57% of the patients did not react to fragrance mix or balsam of Peru. We recommend testing with 3% oxidized R-(+)-limonene in patients referred for patch testing. **CONCLUSION:** The high frequency of oxidized limonene allergy provides clinical evidence for the European classification of R-(+)-limonene that contains oxidation products as skin sensitizers.

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http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12399762&dopt=Abstract

Contact Dermatitis 2002 May;46(5):267-72 Related Articles, Links

Studies on the autoxidation and sensitizing capacity of the fragrance chemical linalool, identifying a linalool hydroperoxide. Skold M, Borje A, Matura M, Karlberg AT. Occupational Dermatology, National Institute for Working Life, Stockholm, Sweden.

Fragrances are among the most common causes of allergic contact dermatitis. The two **monoterpenes linalool and d-limonene** are the most frequently incorporated fragrance chemicals in scented products. Previous studies on d-limonene show that this monoterpene oxidizes on air exposure (autoxidation) and that allergenic oxidation products are formed. Due to structural similarities, linalool might also form allergenic oxidation products on air exposure. The aim of the present study was to study the autoxidation of linalool and to investigate the sensitizing potential of linalool before and after air exposure. Linalool was oxidized for 10 weeks and gas chromatographic analyses showed that the content of linalool decreased to about 80%. The chromatograms revealed the formation of other compounds during oxidation. One of the major oxidation products was isolated and identified as 7-hydroperoxy-3,7-dimethyl-octa-1,5-diene-3-ol. This substance is, to the best of our knowledge, described for the first time. In sensitization studies in guinea pigs, linalool of high purity gave no reactions, while linalool that had been oxidized for 10 weeks sensitized the animals. It is concluded that autoxidation of linalool is essential for its sensitizing potential.

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XYLENOL

Common Name: **2,5-XYLENOL**, EINECS No.: 202-461-5, CAS Registry No: 95-87-4

Chem. Name: 2,5-Dimethyl-phenol., MSDS Name: 2,5-Dimethylphenol, 99+%

Synonyms: 2,5-Xylenol; 1,4-Dimethyl-2-Hydroxybenzene; 1-Hydroxy-2,5-Dimethylbenzene; 2,5-Xylenol; P-Xylenol.

Hazard Symbols: XN Risk Phrases: 21/22

EMERGENCY OVERVIEW: Harmful in contact with skin and if swallowed. Harmful if swallowed. May cause irritation of the digestive tract.

May cause kidney damage. Human fatalities have been reported from acute poisoning.

Inhalation: May cause respiratory tract irritation.

Chronic: Chronic ingestion may cause effects similar to those of acute ingestion.

<http://www.atchem.net/espcs/2,5%20dimethylphenol.doc>

Common Name: **2,6-XYLENOL**, EINECS No.: 209-400-1, CAS Registry No: 576-26-1

Chem. Name: 2,6-Dimethyl-phenol.

Safety (MSDS) data for 2,6-dimethylphenol:

Stable. Very flammable. Incompatible with oxidizing agents, acid chlorides, acid anhydrides, steel, copper, copper alloys, bases, acid chlorides.

Toxicology: Toxic by ingestion, inhalation and through skin contact. Corrosive - causes burns. Very destructive of mucous membranes. <http://physchem.ox.ac.uk/MSDS/DI/2,6-dimethylphenol.html>