


[CDC Home](#)
[CDC Search](#)
[CDC Health Topics A-Z](#)
**NIOSH** *National Institute for  
Occupational Safety and Health*
[Search NIOSH](#) | [NIOSH Home](#) | [NIOSH Topics](#) | [Site Index](#) | [Databases and Information Resources](#) | [NIOSH Products](#) |

[NIOSH Home](#) > [Safety and Health Topics](#) > [Skin Exposures and Effects](#) > [Occupational & Environmental Exposures of Skin to Chemicals - 2005](#) > [Abstracts](#)


## Occupational and Environmental Exposures of Skin to Chemicals - 2005

Abstract for Poster 77

### Skin pH: Practical Implications Regarding Chemical Allergens and Toxics

M. Boeniger  
NIOSH/CDC, Cincinnati, United States

Both organic compounds and inorganic compounds and elements may exist in an ionized form that is pH dependent. It is well known that ionized organic compounds and non-ionized inorganic elements are appreciably less well absorbed through the skin than their corresponding non-ionized and ionized forms, respectively. Roughly, because pH is expressed on a logarithmic scale, for each 1 pH unit change, the ionization of compounds changes 10-fold. Thus, the pH of the skin environment in which these contaminants reside is important in respect to determining the amount of passage through the skin of ionizable chemicals that are potential allergens or systemic toxics. Unfortunately, there is no consensus on a scientifically defensible default assumption for the pH of human skin. Published literature have reported measured skin pH over the range 2.4 to 7+. A recent European Directive, 94/27/EC for the testing of nickel dissolution from worn jewelry items specifies using a simulated sweat pH of 6.5, but provides no documentation to support this choice of pH. It appears that this default pH was derived from a 1974 paper by Pedersen, et al. who likewise provided no justification for this choice, but was among one of the first researchers to create a simulant sweat. A survey of measured skin pH was undertaken among a variety of people in different environments in order to better identify a default skin pH among adults. From the preliminary data, it appears that a more representative skin pH lies between pH 4 and 5. If this assumption is accepted, it would mean that the potential amounts of dissolution of such elements as nickel using the EC method could underestimate the result by a factor of about 100-fold.

Content last modified: 21 May 2005

- [Main Page](#)
- [General Information](#)
- [Co-sponsors](#)
- [List of Planners](#)
- [Concise Schedule](#)
- [Important Dates](#)
- [Preliminary Program](#)
- [Workshops](#)
- [Short Courses](#)
- [Talks and Posters](#)
- [Vendor Exhibits and Seminars](#)
- [Author Index](#)
- [Related Events](#)
- [Conference Registration and Local Information](#)
- [Call for Abstracts](#)

[Return](#)

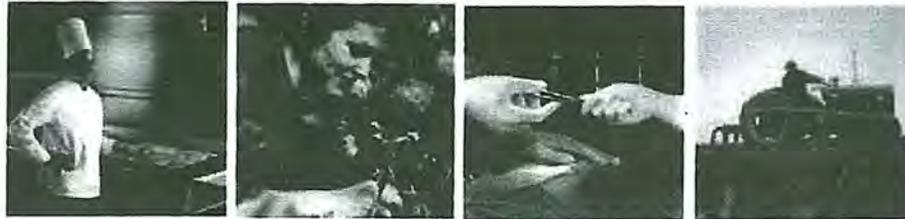

[CDC Home](#)   [CDC Search](#)   [CDC Health Topics A-Z](#)

**National Institute for  
Occupational Safety and Health**

SAFER • HEALTHIER • PEOPLE™

[Search NIOSH](#) | [NIOSH Home](#) | [NIOSH Topics](#) | [Site Index](#) | [Databases and Information Resources](#) | [NIOSH Products](#) |

[NIOSH Home](#) > [Safety and Health Topics](#) > [Skin Exposures and Effects](#) > [Occupational & Environmental Exposures of Skin to Chemicals- 2005](#) > Home

**OEESC**  
2 0 0 5


## Occupational and Environmental Exposures of Skin to Chemicals - 2005

### Site Contents

- [Main Page](#)
- [General Information](#)
- [Co-sponsors](#)
- [List of Planners](#)
- [Concise Schedule](#)
- [Important Dates](#)
- [Preliminary Program](#)
- [Workshops](#)
- [Short Courses](#)
- [Talks and Posters](#)
- [Vendor Exhibits and Seminars](#)
- [Author Index](#)
- [Related Events](#)
- [Conference Registration and Local Information](#)
- [Call for Abstracts](#)

The National Institute for Occupational Safety and Health (NIOSH) and the Karolinska Institutet in cooperation with the Stockholm County Council are taking the lead in organizing this conference. NIOSH is maintaining this website.

**Disclaimer:** Co-sponsorship of the conference and workshop and posting of abstracts and workshop discussion papers (white papers) on a website by NIOSH does not constitute endorsement of the views expressed or recommendation for the use of any commercial product, commodity or service mentioned. The opinions and conclusions expressed are those of the authors and presenters and not necessarily those of NIOSH. Recommendations are not considered as final statements of NIOSH policy or of any agency or individual who was involved. These presentations are intended to be used in advancing knowledge needed to protect workers and the general public.

Menu items on the left provide more information about OEESC-2005.

This conference follows the success of the first [International Conference on Occupational and Environmental Exposures of Skin to Chemicals: Science and Policy](#), which was held near Washinton, DC, in September, 2002.

[Return](#)



[Search NIOSH](#) | [NIOSH Home](#) | [NIOSH Topics](#) | [Site Index](#) | [Databases and Information Resources](#) | [NIOSH Products](#) | [NIOSH Home](#) > [Safety and Health Topics](#) > [Skin Exposures and Effects](#) > [Occupational & Environmental Exposures of Skin to Chemicals- 2005](#) > [Co-sponsors](#)



**OEESC**  
2 0 0 5

## Occupational and Environmental Exposures of Skin to Chemicals - 2005

### Co-sponsors

#### Major co-sponsors:

[National Institute for Occupational Safety and Health, USA](#)

[Karolinska Institutet and Stockholm County Council, Sweden](#)

[Swedish Work Environment Authority, Sweden](#)

[The National Institute of Public Health, Sweden](#)

[Swedish Council for Working Life and Social Research, Sweden](#)

[Swedish Asthma and Allergy Association, Sweden](#)

[The Vardal Foundation - for Health Care Sciences and Allergy Research, Sweden](#)

#### Other co-sponsors:

[Swedish Chemicals Inspectorate, Sweden](#)

[National Institute for Working Life, Sweden](#)

The organizers of OEESC-2005 appreciate those organizations that supported the goals of this conference through financial or in-kind contributions. Contributions were used to pay the full or partial travel and conference registration costs of invited speakers and guests and to reduce the registration fees of attendees by paying part of the costs associated with such expenses as meeting room rental, poster display board rental, abstract book, breaks, reception and conference dinner.

The conference account is managed by Karolinska Institutet.

- [Main Page](#)
- [General Information](#)
- **[Co-sponsors](#)**
- [List of Planners](#)
- [Concise Schedule](#)
- [Important Dates](#)
- [Preliminary Program](#)
- [Workshops](#)
- [Short Courses](#)
- [Talks and Posters](#)
- [Vendor Exhibits and Seminars](#)
- [Author Index](#)
- [Related Events](#)
- [Conference Registration and Local Information](#)
- [Call for Abstracts](#)