



PREVOR

ANTICIPATE AND SAVE

Toxicology Laboratory & Chemical Risk Management

le cnam

Prevor Training registration n°: 11950227395

CHEMICAL RISK

From physico chemical to toxicology...

INTERNATIONAL TRAINING COURSE
PARIS, JUNE 15TH TO 19TH 2020



Co organized by the CNAM Paris (National Conservatory of Arts and Crafts) and PREVOR laboratory, the aim of this international training course is to demystify chemical molecules' nature and reactivity we live with in our everyday life. Mastering mechanistic cornerstones of toxicology will provide a broader understanding of the practical importance of chemical hazard inventory and that of a concrete approach of technological and human risk assessments.

CNAM - 292 RUE SAINT-MARTIN - 75003 PARIS

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OBJECTIVES

Upon completion of this course you will be able to:

- ▶ understand the key principles of toxicology
- ▶ deduct the hazard mechanisms of a product through its chemical properties
- ▶ compile a prioritized hazard inventory
- ▶ assess the relative risks associated with the use of a product in the professional environment

This training program alternates theoretical courses, practical lab workshops and tutorials.

TARGETED AUDIENCE

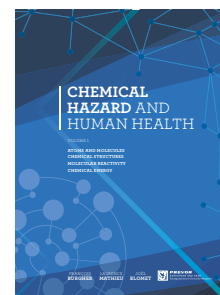
This course is aimed at all those involved in companies' chemical risk management: safety engineers, occupational physicians, laboratory managers, safety officers, firefighters or paramedical staff responsible of implementing prevention measures, and so on.

PRE-REQUISITES

- ▶ Be concerned with chemical hazard and risks at the workplace (industry, laboratory, hospital and so on)
- ▶ English adapted to the subject treated (course delivered in English).

TEACHING MATERIALS

Theoretical lectures, practical work and tutorial courses, course evaluation. Each trainee will be supplied with our most recent book, **Chemical Hazard and Human Health**



LENGTH

5 days

PLACE

CNAM - 292 rue Saint-Martin - 75003 PARIS
Room 21.2.23

COST OF THE COURSES

€ 2,500

INTERVENERS

**Joël Blomet**

Engineer ESPCI, Paris
Research Director

**Dr Laurence Mathieu**

PhD in organic chemistry
Aix-Marseille III University,
Engineer ECM
Head of Scientific Action Group

**Dr François Burgher**

Physician, Toxicologist,
Chemical risks trainer

**Adeline Navarro**

Chemical Engineer, CPE Lyon
Specialized in formulation,
Scientific Communication Officer
Scientific Action Group

**Janine Bigaignon**

RN, Dip in OHN
Master in Adult Education
Scientific Action Group

GUEST SPEAKERS

**Pr Steven Jeffery**

Consultant Plastic Surgeon, UK

**Dr Jou-Fan Deng**

Founder and Emeritus Director,
The National Poison Center of Taiwan
Taipei Veterans General Hospital, Taiwan

**Jozef Verbelen**

RN, MScN, Burn Care Coordinator
Dept. of Plastic & Reconstructive
Surgery / Burn Centre
University Hospital Gent, Belgium

PART I : MOLECULAR STRUCTURE, PHYSICAL PROPERTIES AND CHEMICAL REACTIVITY

Monday June 15th

08.45
09.00

Welcome by **Prevor Team** and by **Catherine Gomez - CNAM**

09.00
12.00

10.15
10.45
break

Introduction

- ▶ Molecular structure and symptoms' relationship
- ▶ Energetic level of reaction and predictive toxicology

Joël Blomet, MSC, Engineer

Guest speaker

- ▶ Chemical injuries in the UK and India (20 min + questions)

Dr Steven Jeffery, MD, UK

12.00
14.00

Lunch

14.00
17.00

15.15
15.45
break

- ▶ Introduction to the understanding of toxicology, based on chemical reactivity
- ▶ Review of fundamental concepts in chemistry
- ▶ Atoms, molecular structure, bonding, reaction mechanisms, solvation...
- ▶ Covalent bond, electronegativity scale and bond polarization, dipolar moment, molecular stability and reactivity

Adeline Navarro, Engineer

François Burgher, MD



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© Prevor

08.45
09.00

Welcome

09.00
12.00

10.15
10.45
break

Physical properties of molecular structure

States of matter, phase concept, importance of physical properties for dynamic of penetration and dispersion in the human body

Adeline Navarro, Engineer

François Burgher, MD

12.00
14.00

Lunch

14.00
17.00

15.15
15.45
break

Alternately with laboratory Workshop (at the Laboratory) and Directed exercises

Chemical lesion:

Toxics, corrosives, irritants: dose-effect relationship and aggravating factors

Chemical decontamination: what can we do?

Laurence Mathieu, PhD, Engineer

Janine Bigaignon, RN



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Alternately with the course about Chemical Lesion, Laboratory Workshops (At the Laboratory) or Directed Exercises

08.45
09.00

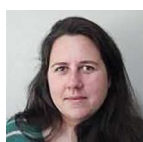
Welcome

09.00
12.00

10.15
10.45
break



K. Padois



C. Fraboulet



H. Coudouel

- ▶ **LW 1:** Measure penetration of irritant and corrosive chemicals using in vitro skin models
- ▶ **LW 2:** Substitute a hazardous solvent for a mixture of different molecules
- ▶ **LW 3:** Optimize aspiration of effluents at workstation

Karine Padois, PhD Engineer; Cécile Fraboulet, Research Assistant; Hervé Coudouel, Research Assistant

- ▶ **DE 3:** Analyze the different types of hazards and danger of a product based on the Material Safety Data Sheet (MSDS) items. Propose effective preventive and protective measures at workstation (research laboratory, pilot site, industrial plant...)

12.00
14.00

Lunch

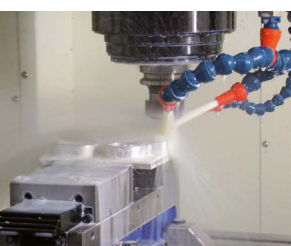
14.00
17.00

15.15
15.45
break



- ▶ **DE 1 - DE 2:** Role of energy in chemical reactions. Evaluate the toxicity of an unknown molecule by comparison with a series of well-known chemicals. Classify chemicals of a similar family based on different Lethal Dose (LD_{50}) referenced

Joël Blomet, MSC, Engineer



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PART II : MECHANISMS AND SYMPTOMS IN TOXICOLOGY

Thursday June 18th

08.45
09.00

Welcome

09.00
12.00

10.15
10.45
break

- ▶ In practice, how to build molecules?
- ▶ Carbonated structures, simple or double C-C bond, saturated and unsaturated hydrocarbons, linear or substituted hydro-carbons, cyclic molecules, aromatic structures...
- ▶ Oxygenated molecules, examples of functional groups: alcohol, aldehyde, acid and ketone, ester, ether...
- ▶ Modulating groups: example of halogenated organic acids
- ▶ Other functional groups with nitrogen, sulfur and phosphorus...
Example of chemistry of allergens (haptens)

Laurence Mathieu, PhD, Engineer

Source : www.cnam.fr

12.00
14.00

Lunch

14.00
17.00

▶ Visit of the CNAM Museum



Friday June 19th

08.45
09.00

- ▶ Xenobiotics interferences at a biochemical level and biological targets

Guest speakers

09.00
12.00

10.15
10.45
break

- ▶ How shall we manage the chemical splashes of TMAH.
Dr Jou-Fang Deng, MD, Taiwan
- ▶ Treatment of chemical injury in the university hospital of Gent (Belgium), the changed approach.
Jozef Verbelen, RN, Belgium
- ▶ Practical workshop: learning by game playing and using digital media; example of management of chemical exposure.

Janine Bigaignon, Laurence Mathieu, Adeline Navarro, Claudia Jupiter

12.00
14.00

Lunch

14.00
17.00

15.15
15.45
break

- ▶ Nanoparticles
- ▶ Nanoparticles' structure.
- ▶ Have nanoparticles new chemical properties?
- ▶ Physical dimension of nanoparticles' danger?

General conclusion of the seminar

Joël Blomet, MSC, Engineer

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INTERNATIONAL TRAINING COURSE REGISTRATION

June 15th to 19th 2020 from 9 am to 5 pm

at CNAM - 292 rue Saint-Martin - 75003 PARIS

Cost of the courses: € 2,500

Please return this registration to cjupiter@prevor.com

ORGANIZATION OF THE COURSE



Scientific Program:
Laurence Mathieu, PhD
Head of Scientific
Action Group

Logistic:
Claudia Jupiter,
Assistant of scientific
Action Group
Tel: +33134089534
Email: cjupiter@prevor.com



Company / Organism

Service

Last Name / First Name

Function

Email

Phone

Fax

Address

Country



PREVOR
ANTICIPATE AND SAVE
Toxicology Laboratory & Chemical Risk Management

MANAGEMENT AND PREVENTION OF CHEMICAL RISKS



SOLUTIONS FOR DECONTAMINATION

Emergency management and washing of chemical splashes

<http://www.prevor.com/>

ABSORBENTS

Management of accidental chemical spills

<http://environnement.prevor.com/en/>



E-LEARNING

Training of safety and medical professionals regarding chemical risks' management

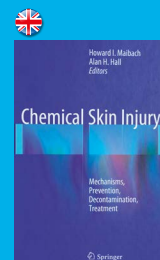
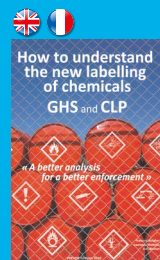
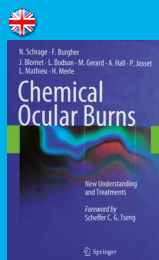
<https://elearning.prevor.com/EN/index.php>

- Chemical Lesions
- Solvents
- Labelling

BOOKS

Technical and educational publications for the comprehension, management and prevention of chemical risks

<http://www.prevor.com/en/books-on-chemical-risk-prevention-and-management-of-chemical-risk-and-burns>



NEW



PREVOR

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Toxicology Laboratory & Chemical Risk Management

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