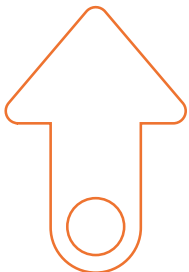




# Studies & Research

serving occupational safety and health

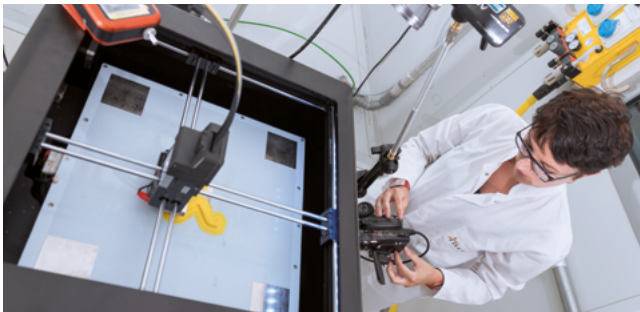


INRS develops four complementary modes of action for contributing to preventing occupational accidents and diseases: studies & research, assistance, training, and information.

The aim of the **studies & research** work is to create new knowledge that is useful for improving occupational safety and health. It meets various requirements:

- **Being tuned in to the needs of the working world:** The research work grasps the realities and the changes encountered in the working world. It aims to identify the hazards, to assess the existing or emerging risks, and to develop prevention solutions. This involves working on real situations, often out in the companies.
- **Forming a continuum between research and applications:** The research activity is extended through transfer of the resulting knowledge to its users, and in particular to occupational risk preventers and to occupational health services, so as to transpose the findings into training or information actions designed in cooperation with the Divisions of INRS.
- **Providing scientific quality:** Bearing in mind that the findings of the work can have direct impacts on risk prevention practices. The teams are concerned to produce findings that are reliable and validated by peers, in particular through publications in peer-reviewed international journals. The projects led by the INRS teams are also assessed by monitoring or follow-up groups and by a scientific commission, the members of these bodies being recognised experts from outside INRS.
- **Implementing multidisciplinary approaches:** A broad-based and inclusive approach to the issues raised can require multidisciplinary projects to be launched, made possible by the presence of multiple skills on a single site. Researchers from many different disciplines contribute to this: from biological and medical sciences, engineering, physics, chemistry, and human and social sciences.

A significant part of the studies and research work relates to identified risks that are still present and that constitute the core of four prevention programmes: **biological, chemical, and physical & mechanical risks, and risks related to work organisation and work situations.** Some of it addresses **topics related to technological, economic, and environmental changes**, for which little stabilised knowledge exists, such as robotics, nanoparticles, multiple exposures and co-exposures, etc.



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## ➔ 6 Research Divisions

### »» Occupational Epidemiology

This Division conducts studies aimed at highlighting deteriorations in health due to occupational exposures to substances, working environments, or psychosocial factors. It also conducts assessments of the impacts of interventions or training on occupational risk prevention.

### »» Pollutants Metrology

This Division develops not only methods for establishing a priori strategies for sampling and assessing exposures, but also methods for characterising occupational exposures that take place by inhalation and by contact with the skin. It makes advantageous use of the data collected in databases (Colchic and Scola).

### »» Process Engineering

This Division is assigned to seeking, studying, and promoting risk prevention solutions in response to the problems of exposure to toxic agents. After identifying and assessing the exposures, the Division seeks technical risk prevention solutions upstream so as to keep pollution under control at source.



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### »» Toxicology and Biomonitoring

This Division does applied research in toxicology, in the field of assessment of risks related to exposure to pollutants in the occupational environment. The two focuses for the work are firstly biological monitoring of exposure and of the consequences of exposure in humans in working situations, and secondly measurement of the toxic effects on experimental systems.



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### »» Work Equipment Engineering

This Division develops engineering for preventing the mechanical and physical risks related to work equipment. In addition to being a source of accident risks, work equipment can give off noise, vibration, and optical or electromagnetic radiation that can have effects on health. The Division aims to improve work equipment as of the design stage.

### »» Working Life

This Division conducts actions aimed at improving working conditions. Focused on analysis of working life activity, and of the practices used in industry, and on experimentation that simulates working situations, the issues addressed relate to assessing the risks and to the means for preventing them, in relation to the physical, physiological, psychosocial, organisational, technological, and demographic aspects.

## → 20 specialist laboratories

### »» Occupational Epidemiology

#### »» Pollutants Metrology

- Risk and Exposure Assessment
- Aerosol Inorganic Analysis and Characterisation Laboratory
- Aerosol Metrology
- Metrology of Exposures to Organic Pollutants

### »» Process Engineering

- Spatial and Temporal Analyses of Exposures to Chemicals
- Aerodynamics Engineering
- Processes and Pollutant Cleaning Treatment

### »» Toxicology and Biomonitoring

- Biomonitoring
- Carcinogenic, Mutagenic and Reprotoxic Substances
- Immunology, Sensitisation and Allergies
- Ototoxicity and Neurotoxicity
- Inhalation and Skin Absorption, Toxicokinetics

### »» Work Equipment Engineering

- Occupational Acoustics
- Design – Protective Equipment – Human-Machine Interfaces
- Electromagnetism, Vibration, and Optics
- Safety of Work Equipment and Automated Systems

### »» Working Life

- Ergonomics and Psychology Applied to Prevention
- Management and Organisation for Occupational Safety and Health
- Physiology – Movement - Work

## → Key figures



» Studies & Research represents

**45%**

of INRS's activity



» About

**100 studies**

are on-going at any one time



» **270 people**

contribute to the Studies & Research:  
engineers, researchers, technicians, etc.



» **25 PhD students**

contribute to the work



» **90 publications a year,**

over half of which are published  
in international journals



» **40% of the studies**

are conducted out in companies



» **66% of studies**

involve external collaborations,  
**20% of which are international**



» About **sixty recognised experts,**

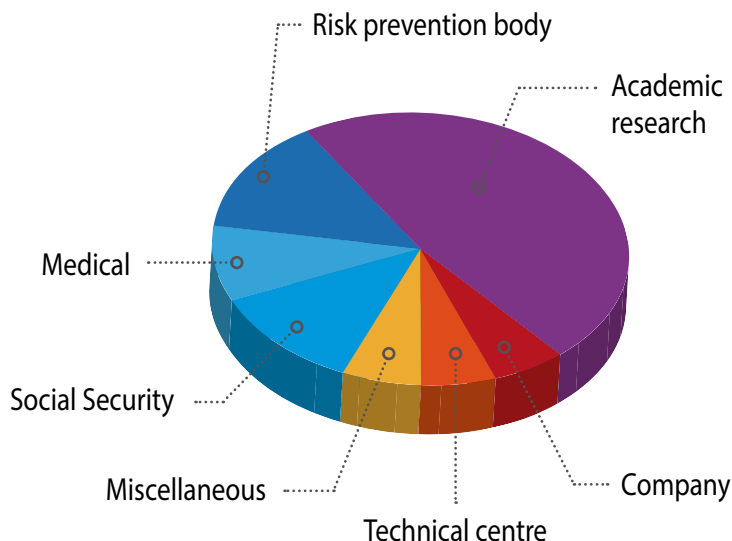
all disciplines combined, make up the  
monitoring or follow-up groups and the  
scientific commission that assist and assess the  
research projects.

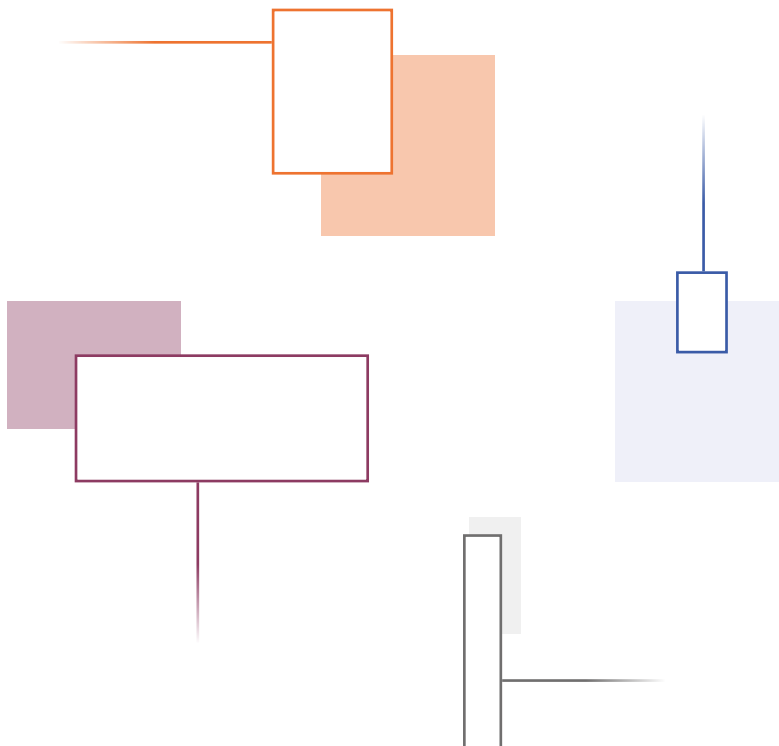
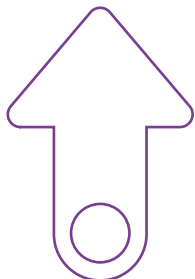
## → Scientific collaborations

The research work is characterised by numerous partnerships. In particular with:

- social security (health insurance) establishments;
- physicians or healthcare establishments;
- academic teams, mainly from laboratories run by universities, CNRS, and Inserm;
- other risk prevention bodies outside France, in particular INRS's counterparts, in particular: the European ones grouped together within the Perosh network, and the *Institut de recherche Robert-Sauvé en santé et en sécurité du travail* (IRSST) in Canada.

### External collaborations in INRS projects





Our job: making yours safer

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