ILO Activities on prevention of major industrial accidents and radiation protection of workers

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The ILO is a tripartite organization with worker and employer representatives taking part in its work on equal status with those of governments.

The number of the ILO member countries now stands at 186.

In 1969 the ILO was awarded the Nobel Peace Prize.
Standard-setting is one of the ILO’s major means of action to improve conditions of life and work worldwide. ILO standards are Conventions and Recommendations adopted by the International Labour Conference.
Between 1919 and 2015, 189 Conventions, 6 protocols and 204 Recommendations were adopted. Many of these instruments relate to occupational safety and health.
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NORMLEX has been designed to provide comprehensive and user friendly information on these topics and includes the NATLEX database as well as the information which was previously contained in the former APPLIS, ILOLEX and Libsindy databases. more

Total number of ratifications registered since 1919

- ILO member States: 186
- ILO instruments adopted: 399
  - Conventions: 189
  - Protocols: 6
  - Recommendations: 204

Latest Ratifications

- October 2015
Conventions and Recommendations

Occupational Safety and Health

- C155 Occupational Safety and Health Convention, 1981
- R164 Occupational Safety and Health Recommendation, 1981
- R197 Promotional Framework for Occupational Safety and Health Recommendation, 2006

Occupational Health Services

- C161 Occupational Health Services Convention, 1985
- R171 Occupational Health Services Recommendation, 1985
Major Hazard Control
- C174 Prevention of Major Industrial Accidents Convention, 1993
- R181 Prevention of Major Industrial Accidents Recommendation, 1993

Working Environment
- C148 Working Environment (Air Pollution, Noise and Vibration) Convention, 1977
- R156 Working Environment (Air Pollution, Noise and Vibration) Recommendation, 1977

Toxic Substances and Agents
- R3 Anthrax Prevention Recommendation, 1919
- C162 Asbestos Convention, 1986
- R172 Asbestos Recommendation, 1986
- C136 Benzene Convention, 1971
- R144 Benzene Recommendation, 1971
- C170 Chemicals Convention, 1990
- R177 Chemicals Recommendation, 1990
- C115 Radiation Protection Convention, 1960
- R114 Radiation Protection Recommendation, 1960
- C13 White Lead (Painting) Convention, 1921

Occupational Cancer
- C139 Occupational Cancer Convention, 1974
- R147 Occupational Cancer Recommendation, 1974
Guarding of Machinery

- C119 Guarding of Machinery Convention, 1963
- R118 Guarding of Machinery Recommendation, 1963

Maximum Weight

- C127 Maximum Weight Convention, 1967
- R128 Maximum Weight Recommendation, 1967
Particular Branches of Activity

- C164 Health Protection and Medical Care (Seafarers) Convention, 1987
- C120 Hygiene (Commerce and Offices) Convention, 1964
- C27 Marking of Weight (Packages Transported by Vessels) Convention, 1929
- R106 Medical Advice at Sea Recommendation, 1958
- C113 Medical Examination (Fishermen) Convention, 1959
- C73 Medical Examination (Seafarers) Convention, 1946
- C152 Occupational Safety and Health (Dock Work) Convention, 1979
- R160 Occupational Safety and Health (Dock Work) Recommendation, 1979
- C110 Plantations Convention, 1958
- C134 Prevention of Accidents (Seafarers) Convention, 1970
- R142 Prevention of Accidents (Seafarers) Recommendation, 1970
- C28 (Shelved) Protection against Accidents (Dockers) Convention, 1929
- C32 Protection against Accidents (Dockers) Convention (Revised), 1932
- C184 Safety and Health in Agriculture Convention, 2001
- R192 Safety and Health in Agriculture Recommendation, 2001
- C167 Safety and Health in Construction Convention, 1988
- R175 Safety and Health in Construction Recommendation, 1988
- C176 Safety and Health in Mines Convention, 1995
- R183 Safety and Health in Mines Recommendation, 1995
- C62 Safety Provisions (Building) Convention, 1937
- R53 Safety Provisions (Building) Recommendation, 1937
- R105 Ships' Medicine Chests Recommendation, 1958
Employment of Women

- C3 Maternity Protection Convention, 1919
- C103 Maternity Protection Convention (Revised), 1952
- C183 Maternity Protection Convention, 2000
- R191 Maternity Protection Recommendation, 2000
- C89 Night Work (Women) Convention (Revised), 1948
- P89 Protocol of 1990 to the Night Work (Women) Convention (Revised), 1948
- C45 Underground Work (Women) Convention, 1935

Employment of Children and Young Persons

- C77 Medical Examination of Young Persons (Industry) Convention, 1946
- C78 Medical Examination of Young Persons (Non-Industrial Occupations) Convention, 1946
- C16 Medical Examination of Young Persons (Sea) Convention, 1921
- C124 Medical Examination of Young Persons (Underground Work) Convention, 1965
- C138 Minimum Age Convention, 1973
- C10 Minimum Age (Agriculture) Convention, 1921
- C7 Minimum Age (Sea) Convention, 1920
- C90 Night Work of Young Persons (Industry) Convention (Revised), 1948
- C79 Night Work of Young Persons (Non-Industrial Occupations) Convention, 1946
- C182 Worst Forms of Child Labour Convention, 1999
- R190 Worst Forms of Child Labour Recommendation, 1999

Migrant Workers

- C143 Migrant Workers (Supplementary Provisions) Convention, 1975
Labour Inspection

- C81 Labour Inspection Convention, 1947
- R81 Labour Inspection Recommendation, 1947
- P81 Protocol of 1995 to the Labour Inspection Convention, 1947
- C129 Labour Inspection (Agriculture) Convention, 1969
- R133 Labour Inspection (Agriculture) Recommendation, 1969
- C178 Labour Inspection (Seafarers) Convention, 1996
- R185 Labour Inspection (Seafarers) Recommendation, 1996
Occupational safety and health

C013 - White Load (Painting) Convention, 1921 (No. 13)
C045 - Underground Work (Women) Convention, 1935 (No. 45)
C062 - Safety Provisions (Building) Convention, 1937 (No. 62)
C115 - Radiation Protection Convention, 1960 (No. 115)
C119 - Guarding of Machinery Convention, 1963 (No. 119)
C120 - Hygiene (Commerce and Offices) Convention, 1964 (No. 120)
C127 - Maximum Weight Convention, 1967 (No. 127)
C136 - Benzene Convention, 1971 (No. 136)
C139 - Occupational Cancer Convention, 1974 (No. 139)
C155 - Occupational Safety and Health Convention, 1981 (No. 155)

C161 - Occupational Health Services Convention, 1985 (No. 161)
C162 - Asbestos Convention, 1986 (No. 162)
C167 - Safety and Health in Construction Convention, 1988 (No. 167)
C170 - Chemicals Convention, 1990 (No. 170)
C174 - Prevention of Major Industrial Accidents Convention, 1993 (No. 174)
C176 - Safety and Health in Mines Convention, 1995 (No. 176)
C184 - Safety and Health in Agriculture Convention, 2001 (No. 184)

Social security

C012 - Workmen's Compensation (Agriculture) Convention, 1921 (No. 12)
C017 - Workmen's Compensation (Accidents) Convention, 1925 (No. 17)
C018 - Workmen's Compensation (Occupational Diseases) Convention, 1925 (No. 18)
C019 - Equality of Treatment (Accident Compensation) Convention, 1925 (No. 19)
C024 - Sickness Insurance (Industry) Convention, 1927 (No. 24)
C025 - Sickness Insurance (Agriculture) Convention, 1927 (No. 25)
C035 - Old-Age Insurance (Industry, etc.) Convention, 1933 (No. 35)
Human failures or errors. Human error and unsafe behaviour accounts for almost 90% of all accidents.

Technical faults (Manufacture defects in equipment or material, improper maintenance procedures, lack of preventive maintenance programs, etc)

External forces
• 34........In addition, given the recurring loss to human life and assets across the world on account of unsafe working places, we direct the Task Force to partner with ILO in consultation with countries, and to consider how the G20 might contribute to safer workplaces........
1. Raising global growth to deliver better living standards and quality jobs for people across the world is our highest priority. We welcome stronger growth in some key economies. But the global recovery is slow, uneven and not delivering the jobs needed. The global economy is being held back by a shortfall in demand, while addressing supply constraints is key to lifting potential growth. Risks persist, including in financial markets and from geopolitical tensions. We commit to work in partnership to lift growth, boost economic resilience and strengthen global institutions.

2. We are determined to overcome these challenges and step up our efforts to achieve strong, sustainable and balanced growth, and to create jobs. We are implementing structural reforms to lift growth and private sector activity, recognising that well-functioning markets underpin prosperity. We will ensure our macroeconomic policies are appropriate to support growth, strengthen demand and promote global rebalancing. We will continue to implement fiscal strategies flexibly, taking into account near-term economic conditions, while putting debt as a share of GDP on a sustainable path. Our monetary authorities have committed to support the recovery and address deflationary pressures when needed, consistent with their mandates. We will be mindful of the global impacts of our policies and cooperate to manage spillovers. We stand ready to use all policy levers to underpin confidence and the recovery.

3. This year we set an ambitious goal to lift the G20’s GDP by at least an additional two per cent by 2018. Analysis by the IMF-OECD indicates that our commitments, if fully implemented, will deliver 2.1 per cent. This will add more than USD2 trillion to the global economy and create millions of jobs. Our measures to lift investment, increase trade and competition, and boost employment, along with our macroeconomic policies, will support development and inclusive growth, and help to reduce inequality and poverty.

4. Our actions to boost growth and create quality jobs are set out in the Brisbane Action Plan and in our comprehensive growth strategies. We will monitor and hold each other to account for implementing our commitments, and actual progress towards our growth ambition, informed by analysis from international organisations. We will ensure our growth strategies continue to deliver and will review progress at our next meeting.

5. Actively global investment and infrastructure shortfalls is crucial to lifting growth, job creation and productivity. We endorse the Global Infrastructure Initiative, a multi-year programme to lift quality public and private infrastructure investment. Our growth strategies contain major investment initiatives, including actions to strengthen public investment and improve our domestic investment and financing climate, which is essential to attract new private sector finance for investment. We have agreed on a set of voluntary leasability practices to promote and prioritise quality investment, particularly in infrastructure. To help match investors with projects, we will address data gaps and improve information on project pipelines. We are working to facilitate long-term financing from institutional investors and to encourage market sources of finance, including transparent securitisation, particularly for small and medium-sized enterprises. We will continue to work with multilateral development banks, and encourage national development banks, to optimise use of their balance sheets to provide additional lending and ensure our work on infrastructure benefits low-income countries.

6. To support implementation of the Initiative, we agree to establish a Global Infrastructure Hub with a four-year mandate. The Hub will contribute to developing a knowledge-sharing platform and network between governments, the private sector, development banks and other international organisations. The Hub will foster collaboration among these groups to improve the functioning and financing of infrastructure markets.

7. To strengthen infrastructure and attract more private sector investment in developing countries, we welcome the launch of the World Bank Group’s Global Infrastructure Facility, which will complement our work. We support similar initiatives by other development banks and continued cooperation amongst them.

8. Trade and competition are powerful drivers of growth, increased living standards and job creation. In today’s world we don’t just trade final products. We work together to make things by importing and exporting components and services. We need policies that take full advantage of global value chains and

10. We are strongly committed to ensure young people are in education, apprenticships, education and entrepreneurship. We remain focused on reducing high, by acting to provide investments in vocational and long-term systems. Improving

Supported by an
7. Unemployment, underemployment and informal jobs are significant sources of inequality in many countries and can undermine the future growth prospects of our economies. We are focused on promoting more and better quality jobs in line with our G20 Framework on Promoting Quality Jobs and on improving and investing in skills through our G20 Skills Strategy. We are determined to support the better integration of our young people into the labour market including through the promotion of entrepreneurship. Building on our previous commitments and taking into account our national circumstances, we agree to the G20 goal of reducing the share of young people who are most at risk of being permanently left behind in the labour market by 15% by 2025 in G20 countries. We ask the OECD and the ILO to assist us in monitoring progress in achieving this goal. We will continue monitoring the implementation of our Employment Plans as well as our goals to reduce gender participation gap and to foster safer and healthier workplaces also within sustainable global supply chains.

8. We will address current opportunities and challenges brought into the labour markets through such issues as international labour mobility and the ageing of populations. Domestic labour mobility is an important labour market issue in some G20 countries. We recognize and will further explore the potential of a flourishing silver economy. We further ask our Labour and Employment Ministers to report to us on progress made in 2016.

9. To provide a strong impetus to boost investment, particularly through private sector participation, we have developed ambitious country-specific investment strategies, which bring together concrete policies and actions to improve the investment ecosystem, foster
Convention (No. 174) and Recommendation (No. R181) concerning the Prevention of Major Industrial Accidents

Adopted in June 1993 at the 80th Session of the International Labour Conference
C. 174 applies to **applies to major hazard installations.**
This Convention does not apply to:

a) nuclear installations and plants processing radioactive substances except for facilities handling non-radioactive substances at these installations;
b) military installations;
c) transport outside the site of an installation other than by pipeline

This Convention provides that each Member of the ILO shall formulate, implement and periodically review a coherent national policy concerning the **protection of workers, the public and the environment against the risk of major accidents.**

This policy shall be implemented through **preventive and protective measures for major hazard installations** and, where practicable, shall promote the use of the best available safety technologies.
Components of a major hazard control system

- Definition and identification of major hazard installations
- Information about the installations
- Assessment of major hazards
- Control of the causes of major industrial accidents
- Safe operation of major hazard installations
- Emergency planning
- Siting and land-use planning
- Inspection of major hazard installations
Responsibilities of employers

- Identification of major hazard installations
- Notification to the Competent Authority about the installations
- Develop and maintain a system of major hazard control
- Safety report & accident reporting
Responsibilities of competent authority

- Off-site emergency preparedness
- Siting of major hazard installations
- Inspection
Rights and duties of workers

- Information
- Consultation
- Training
- Corrective action and interruption of the activity
When, in an exporting member State, the use of hazardous substances, technologies or processes is prohibited as a potential source of a major accident, the information on this prohibition and the reasons for it shall be made available by the exporting member State to any importing country.
Convention (No. 115) and Recommendation (No. 114) concerning the protection of workers against ionizing radiations

Adopted in June 1960 at the 44th Session of the International Labour Conference
C. 115 applies to all activities involving exposure of workers to ionizing radiations in the course of their work and provides that each Member of the ILO who ratifies it shall give effect to its provisions by means of laws or regulations, codes of practice or other appropriate methods.
Some key requirements:

- Protective measures be taken in the light of knowledge available at the time. Article 1
- Exposure of workers to ionizing radiations to the lowest practicable level & any unnecessary exposure be avoided. Article 5
- Dose limits for various categories of workers be fixed and be kept under constant review in the light of current knowledge. Article 6
- Dose limits for young workers and worker under 16 be forbidden in work involving ionizing radiations. Article 7
I. General Provisions

3. For the purpose of giving effect to paragraph 2 of Article 3 of the Radiation Protection Convention, 1960, every Member should have due regard to the recommendations made from time to time by the International Commission on Radiological Protection and standards adopted by other competent organizations.

II. Maximum Permissible Levels

4. The levels referred to in Articles 6, 7 and 8 of the Radiation Protection Convention, 1960, should be fixed with due regard to the relevant values recommended from time to time by the International Commission on Radiological Protection. In addition, maximum permissible concentrations of radioactive substances in such air and water as can be taken into the body should be fixed on the basis of these levels.
IV. Methods of Protection

10. Plans should be made in advance for measures—
    (a) to detect as promptly as possible any leakage from, or
        breakage of, a sealed source of radioactive substances which
        may involve a risk of radioactive contamination; and
    (b) to take prompt remedial action to prevent the further
        spread of radioactive contamination and to apply other
        appropriate safety precautions, including decontamination
        procedures, with, as necessary, the immediate collaboration of
        all authorities concerned.

11. Sources which may involve exposure of workers to ionising
    radiations, and the areas in which such an exposure may occur
    or where workers may be exposed to radioactive contamination,
    should be identified, in appropriate cases, by means of easily
    recognisable warnings.

12. All sources of radioactive substances, whether sealed or
    unsealed, in use or stored by an undertaking, should be
    appropriately recorded.
Under Article 19 of the ILO Constitution member States are required to report at appropriate intervals, as requested by the Governing Body, on non-ratified Conventions and on Recommendations, indicating in their reports the extent to which effect has been given or is proposed to be given to those instruments.

Under Article 22, reports are periodically requested from States which have ratified ILO Conventions. The report form to which each State is to conform their reports are approved by the Governing Body. On the right is the approved reporting form for C.115.

Convention concerning Benefits in the Case of Employment Injury (Entry into force: 28 Jul 1967)

Adoption: Geneva, 40th ILC session (08 Jul 1964) - Status: Up-to-date instrument (Technical Convention).

Display in: French - Spanish - Arabic - German - Russian - Chinese

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Preamble

The General Conference of the International Labour Organisation,

Having been convened at Geneva by the Governing Body of the International Labour Office, and having met in its Forty-eighth Session on 17 June 1964, and

Having decided upon the adoption of certain proposals with regard to benefits in the case of industrial accidents and occupational diseases, which is the fifth item on the agenda of the session, and

Having determined that these proposals shall take the form of an International Convention,

adopts this eighth day of July of the year one thousand nine hundred and sixty-four the following Convention, which may be cited as the Employment Injury Benefits Convention, 1964:

Article 1

In this Convention—

(a) the term legislation includes any social security rules as well as laws and regulations;

(b) the term prescribed means determined by or in virtue of national legislation;

(c) the term industrial undertaking includes all undertakings in the following branches of economic activity: mining and quarrying; manufacturing; construction; electricity, gas, water and sanitary services; and transport, storage and communication;

(d) the term dependent refers to a state of dependency which is presumed to exist in prescribed cases;

(e) the term dependent child covers—

(i) a child under school-leaving age or under 15 years of age, whichever is the higher, and

(ii) a child under a prescribed age higher than that specified in subclause (i) and who is an apprentice or student or has a chronic illness or infirmity disabling him for any gainful activity, on conditions laid down by national legislation: Provided that this requirement shall be deemed to be met where national legislation defines the term so as to cover any child under an age appreciably higher than that specified in subclause (i).

Article 2

1. A Member whose economic and medical facilities are insufficiently developed may avail itself by a declaration accompanying its ratification of the temporary exceptions provided for in the following Articles: Article 5, Article 9, paragraph 3, clause (b), Article 12, Article 15, paragraph 2, and Article 18, paragraph 3. Any such declaration shall state the reason for such exceptions.

2. Each Member which has made a declaration under paragraph 1 of this Article shall include in its report upon the application of this Convention submitted under Article 22 of the Constitution of the International Labour Organisation a statement in respect of each exception of which it avails itself—

(a) that its reason for doing so subsists; or

(b) that it renounces its right to avail itself of the exception in question as from a stated date.
INTERNATIONAL LABOUR CONFERENCE

Recommendation 194

Recommendation concerning the List of Occupational Diseases and the Recording and Notification of Occupational Accidents and Diseases

The General Conference of the International Labour Organization,

Having been convened at Geneva by the Governing Body of the International Labour Office, and having met in its 90th Session on 3 June 2002, and

Noting the provisions of the Occupational Safety and Health Convention and Recommendation, 1981, and the Occupational Health Services Convention and Recommendation, 1985, and

Noting also the list of occupational diseases as amended in 1980 appended to the Employment Injury Benefits Convention, 1964, and

Having regard to the need to strengthen identification, recording and notification procedures for occupational accidents and diseases, with the aim of identifying their causes, establishing preventive measures, promoting the harmonization of recording and notification systems, and improving the compensation process in the case of occupational accidents and occupational diseases, and

Having regard to the need for a simplified procedure for updating a list of occupational diseases, and

Having decided upon the adoption of certain proposals with regard to the recording and notification of occupational accidents and diseases, and to the regular review and updating of a list of occupational diseases, which is the fifth item on the agenda of the session, and

Having determined that these proposals shall take the form of a Recommendation;

adopts this twentieth day of June of the year two thousand and two the following Recommendation, which may be cited as the List of Occupational Diseases Recommendation, 2002.
Codes of Practice & Guidelines

- ILO also provides practical guidance in the form of codes of practice or guidelines. They are used as reference work by anyone in charge of formulating detailed regulations or framing occupational safety and health programmes.
International Labour Organization

- Convention (No. 115) and Recommendation (No. 114)
- Code of Practice on Radiation Protection of Workers (Ionizing Radiation)
- Inter-Agency Cooperation
- Employers’ and workers’ participation
On 29 March 2012, ILO confirmed its participation in the revision of GS-R-2 and its intention for co-sponsorship.
International Technical Advisory Group (ITAG) on the IAEA International Report on Fukushima NPP Accident
IAEA TECDOC SERIES

Industrial Safety Management for Nuclear Facilities

Technical Meeting on Industrial Safety Performance Practices, Experience, and Metrics for Nuclear Power Plants during Construction and Operation
Fuzhou, Fujian Province, China
16–18 November 2015
Ref. No.: 621-12-TM-I-50057
Ionizing radiation

Medical radiation exposure

WHO Global Initiative on Radiation Safety in Health Care Settings

BACKGROUND

WHO has launched the Global Initiative on Radiation Safety in Health Care Settings to mobilize the health sector in the safe use of radiation in medicine. This initiative brings together key stakeholders (e.g. health authorities, international organizations, professional and scientific societies) in concerted action. The Initiative seeks to complement the International Action Plan for the Radiological Protection of Patients established by the International Atomic Energy Agency (IAEA) in 2002. The provision of policy guidance to health authorities and the development of practical tools for users of radiation in the medical field will enhance protection of patients and health care workers.

The wide use of radiation in medicine calls for a public health approach to
MEMORANDUM OF UNDERSTANDING  
between  
the International Labour Organization  
and  
the Organisation for Economic Co-operation and Development
The IAEA Radiation Safety Standards Committee (RASSC)

The IAEA Emergency Preparedness and Response Standards Committee (EPRReSC)
Inter-Agency Committee on Radiation Safety

(IACRS)
International Action Plan for Occupational Radiation Protection

- Developed by IAEA in co-operation with ILO.
- Approved by the IAEA Board of Governors on 8 September 2003.
- Fourteen actions grouped in areas, such as:
  - ILO Convention 115
  - Information exchange
  - Education and awareness
  - Promotion of a holistic approach to workplace safety
  - Protection of pregnant workers
  - Probability of causation
International Conference on
Occupational Radiation Protection:
Enhancing the Protection of Workers —
Gaps, Challenges and Developments

1–5 December 2014
Vienna, Austria
International Conference on Global Emergency Preparedness and Response
19 to 23 October 2015
Vienna, Austria
Fukushima nuclear accidents: Information resources

Following a major 9.0 magnitude earthquake and tsunami which struck north-eastern Japan on 11 March 2011, the Fukushima nuclear power plants have experienced equipment failures which caused a series of explosions, fires, injuries to the plant workers and emergency responders and radiation releases.

<table>
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<tr>
<th>Type</th>
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<tr>
<td>Date issued</td>
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<td>Regions and countries covered</td>
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<td>Unit responsible</td>
<td>Programme on Safety and Health at Work and the Environment (SAFEWORK)</td>
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<td>Subjects</td>
<td>hazardous work, occupational safety and health, natural disasters</td>
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The status of the Fukushima Daiichi Nuclear Power Plant accident and its effects on the safety and health of the workers and the public are regularly updated on-line on the websites of the related national and international nuclear and health authorities and on the website of the operator of the Fukushima nuclear power plant.

List of reliable on line sources for the latest information on the status of nuclear reactors and radioactive releases:

- International Atomic Energy Agency
- World Health Organization (FAQs: Japan nuclear concerns)
- Japan Nuclear and Industrial Safety Agency (national nuclear regulatory authority)
- Japan Atomic Industrial Forum (national nuclear industry forum)
- Tokyo Electric Power Company (operator of the Fukushima nuclear power plant)
- Information on levels of radioactivity (from the Ministry of Education, Culture, Sports, Science and Technology of Japan)
- Location of nuclear power plants in Japan
- Basic design information for boiling water reactors (BWRs)

For more information about ILO's activities on radiation protection

- Protecting workers against radiation: ILO activities
- Main ILO Instruments and Publications on Radiation Protection
After the first round of symptoms, there may be a brief period with no apparent illness, but this may be followed within weeks by new, more serious symptoms.

At higher levels of radiation, all of these symptoms may be immediately apparent, along with widespread - and potentially fatal - damage to internal organs. Exposure to a radiation dose of 4 Gy will typically kill about half of all healthy adults.

Exposure to radiation can also induce the non-lethal transformation of cells, which may still retain their capacity for cell division. The human body’s immune system is very effective in detecting and destroying abnormal cells. However, there is a possibility that the non-lethal transformation of a cell could lead, after a latency period, to cancer in the individual exposed, if it is a somatic cell, or may lead to hereditary effects, if it is a germ cell. Such effects are assumed to be proportional to the dose received and have no threshold. The “dose-rate-adjusted nominal risk coefficient of dose”, which includes the risks of all cancers and hereditary effects, is 5% per sievert (Sv).

**Prevention and protection measures for emergency workers**

The International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources (BSS) - [pdf 3478 KB], formally published in 1996, are jointly developed and sponsored by the Food and Agriculture Organization of the United Nations (FAO), the IAEA, the ILO, the Nuclear Energy Agency of the Organization for Economic Co-operation and Development (OECD-NEA), the Pan American Health Organization (PAHO) and the World Health Organization (WHO).

The BSS provide a worldwide basis for harmonized radiation protection standards that complement the ILO Convention No. 115. As to the protection of workers engaged in nuclear and radiological emergency operation, the BSS stipulate:

V.27. No worker undertaking an intervention shall be exposed in excess of the maximum single year dose limit for occupational exposure specified in Schedule II, except:

(a) for the purpose of saving life or preventing serious injury;

(b) if undertaking actions intended to avert a large collective dose; or

(c) if undertaking actions to prevent the development of catastrophic conditions.

When undertaking intervention under these circumstances, all reasonable efforts shall be made to keep doses to workers below twice the maximum single year dose limit, except for life-saving actions, in which every effort shall be made to keep doses below ten times the maximum single year dose limit in order to avoid deterministic effects on health. In addition, workers undertaking actions in which their doses may approach or exceed ten times the maximum single year dose limit shall do so only when the benefits to others clearly outweigh their own risk.

V.28. Workers who undertake actions in which the dose may exceed the maximum single year dose limit shall be volunteers and shall be clearly and comprehensively informed in advance of the associated health risk, and shall, to the extent feasible, be trained in the actions that may be required.

V.29. The legal person responsible for ensuring compliance with the foregoing requirements shall be specified in emergency plans.
V.30 Once the emergency phase of an intervention has ended, workers undertaking recovery operations, such as repairs to plant and buildings, waste disposal or decontamination of the site and surrounding area, shall be subject to the full system of detailed requirements for occupational exposure prescribed in Appendix I.

V.31 All reasonable steps shall be taken to provide appropriate protection during the emergency intervention and to assess and record the doses received by workers involved in emergency intervention. When the intervention has ended, the doses received and the consequent health risk shall be communicated to the workers involved.

V.32 Workers shall normally not be precluded from incurring further occupational exposure because of doses received in an emergency exposure situation. However, qualified medical advice shall be obtained before any such further exposure if a worker who has undergone an emergency exposure receives a dose exceeding ten times the maximum single year dose limit or at the worker’s request.

Annex – Dose limits for workers engaged in nuclear and radiological emergencies in selected countries

Canada
The Radiation Protection Regulations state the following under the heading “Emergencies”:

15. (1) During the control of an emergency and the consequent immediate and urgent remedial work, the effective dose and the equivalent dose may exceed the applicable dose limits prescribed by sections 13 and 14, but the effective dose shall not exceed 500 mSv and the equivalent dose received by the skin shall not exceed 5 000 mSv.

(2) Subsection (1) does not apply in respect of pregnant nuclear energy workers who have informed the licensee in accordance with subsection 11(1).

(3) The dose limits prescribed by sections 13 and 14 and subsection (1) may be exceeded by a person who acts voluntarily to save or protect human life.

Note that sections 13 and 14 stipulate the “regular” equivalent and effective dose limits for both workers and the public.

France
The present regulation is the following:

1 100 mSv during the whole intervention (emergency exposure situations)

2 300 mSv when the intervention is for saving lives which can be exceeded in exceptional circumstances for saving human lives. These exceptional cases require special authorization with voluntary rescue operators well informed about the risk they take.

3 In no case the total cumulated effective dose must exceed 1 Sv.

For “non-specialists” the reference level is 10 mSv per intervention (these people are only informed about the risk).

The Republic of Korea
The Korean regulations which adopted the 1990 ICRP Recommendations set the dose limits for emergency workers as follows:

- Effective dose: 500 mSv
- Skin (extremity): 5 Sv (Gy)
- No limits in case of life saving actions.

The regulations include no specific criteria for applying these limits.

The Russian Federation
The Russian regulations of Radiation Safety Standards NRB-99/2009

Maximum doses for emergency workers in the emergency exposure situations are:

- Effective dose 200 mSv;
- Equivalent dose to the lens of the eye – 600 mSv;
- Equivalent dose to the skin – 2000 mSv;
- Equivalent dose to the extremity – 2000 mSv.

1 On 11 March 2011, the Japanese government declared a “nuclear power emergency”, evacuated residents living within a 20 km (12 mile) zone around the plant and urged those living between 20 km and 30 km from the site to stay indoors. The latter zone was later subject to voluntary evacuation. About 170,000–200,000 people were evacuated after officials voiced the possibility of core damage. On 18 March, based on the International Nuclear and Radiological Event Scale (INES), the Japanese Ministry of Economy, Trade and Industry assessed the safety significance rating of the accident at the plant as Level 5. On 12 April, this assessment was revised to Level 7 following information obtained from estimations of the amount of radioactive material discharged to the atmosphere.

2 Workers undertaking an intervention may include, in addition to those employed by registrants and licensees, such assisting personnel as police, firemen, medical personnel and drivers and crews of evacuation vehicles.

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Radiation protection of workers
SafeWork Information Note Series, Information Note No. 1

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Authors Dr. Shengli Niu
Unit responsible Programme on Safety and Health at Work and the Environment (SAFEWORK)
Subjects hazardous work, occupational safety and health

Download English - pdf 5434 KB

The purpose of this Information note is to provide information about the size of the workforce affected by, and the occupational activities associated with, exposure to radiation and the relevant ILO instruments on the protection of workers.
Practical Guides and Manuals
Danger
Self-heating; may catch fire

Warning
Self-heating in large quantities; may catch fire
### TOLUENE

- **CAS #**: 108-88-3
- **RTECS #**: XS250000
- **ICSC #**: 0078
- **UN #**: 1294
- **EC #**: 601-021-00-3

**Methylbenzene**
- **Chemical Name**: Toluol
- **Chemical Formula**: C₇H₈
- **Molecular Mass**: 92.1

#### Types of Hazard/Exposure

<table>
<thead>
<tr>
<th></th>
<th>Acute Hazards/Symptoms</th>
<th>Prevention</th>
<th>First Aid/Fire Fighting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRE</strong></td>
<td>Highly flammable</td>
<td>NO open flames, NO sparks, and NO smoking.</td>
<td>Powder, AFFF, foam, carbon dioxide.</td>
</tr>
</tbody>
</table>

### NITROBENZENE

- **CAS #**: 98-95-3
- **RTECS #**: DA6475000
- **ICSC #**: 0065
- **UN #**: 1662
- **EC #**: 609-003-00-7

**Nitrobenzol**
- **Chemical Formula**: C₇H₈NO₂
- **Molecular Mass**: 123.1

#### Types of Hazard/Exposure

<table>
<thead>
<tr>
<th></th>
<th>Acute Hazards/Symptoms</th>
<th>Prevention</th>
<th>First Aid/Fire Fighting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRE</strong></td>
<td>Combustible.</td>
<td>NO open flames.</td>
<td>Powder, water spray, foam, carbon dioxide.</td>
</tr>
<tr>
<td><strong>EXPLOSION</strong></td>
<td>Above 80°C explosive vapour/air mixtures may be formed. Risk of fire and explosion.</td>
<td>Above 80°C closed system, ventilation.</td>
<td></td>
</tr>
</tbody>
</table>

#### Exposure

- **Inhalation**: Convulsions, blue lips or fingernails, blue skin, diarrhoea, headache, lightheadedness, shortness of breath, cold extremities.
- **Strict Hygiene!**

#### Spillage Disposal

Evacuate danger area and ventilation in a large spillage because of explosion risk.
ILO OSH Information Products

- ILO Encyclopedia on OSH
- ILO e-OSH
- Other ILO OSH information products
- OSH Legislation
- Exposure limits
- Solutions
- Tools
- OSH Institutions worldwide
e-OSH: Electronic library on occupational safety and health

DVD, 2013 edition. Everything you want to know about safety and health at work in two clicks.

Multimedia kit | 19 June 2013

Contact(s): content - safework@ilo.org; to order the DVD - pubvente@ilo.org

Reference: 2227-4340 [SSN]

e-OSH gives you quick access to the following content:

- Conventions and recommendations
- Codes of practice
- ILO Encyclopaedia
- International Chemical Safety Cards
- OSH Series (e.g. List of occupational diseases (revised 2010), Radiation protection of workers)
- Reports of the World Day and World Congress on Safety and Health at Work
- Training materials and videos

System requirements:
1. Windows PC (Windows XP and above)
2. DVD Reader
3. Monitor resolution of minimum 1024 x 768
4. Adobe Acrobat Reader
5. Internet browser (Internet Explorer or Firefox or Google Chrome)
Global Database on Occupational Safety and Health Legislation

The ILO Global Database on Occupational Safety and Health Legislation (LEGOSH) provides a picture of the regulatory framework of the main elements of OSH legislation, including OSH management and administration, employers' duties and obligations, workers' rights and duties, OSH inspection and enforcement, among others. LEGOSH classification structure is based on a comprehensive set of 11 themes which follows and captures the main part of the key ILO standards such as the ILO Convention No. 155 on Occupational Safety and Health (1981) and the Recommendation No.194. Convention No.187 on the Promotional framework for occupational safety and health (2003), the Labour Inspection Convention C081 and other technical Conventions as benchmarks.

LEGOSH contains comprehensive legal information, which allows you to:

1. Access synthesis of OSH legislation in English and authentic legal texts in original language;
2. Conduct customized research on a specific country;
3. Compare the legislation of several countries or regions on a particular subject;
4. Perform searches by text;
5. Link to national and regional OSH institutions websites, OSH databases and other relevant sources of OSH legislation, policies and information;
6. Relate to the relevant comments of the ILO Committee of Experts on the Application of Conventions and Recommendations (CEACR).

The user-friendly interface provides straightforward navigation. Please “compare countries” if you want to compare topics for several countries, “browse by country” to generate a country profile, click on “free search” to undertake a free search and consult the guide “How to use this database” for further information. The Database was last updated in 2013. The exact date of the most recent update is indicated for each country.

Use and citation of this database:

When using or publishing information from this database, please cite the website as your source. ILO Global Database on Occupational Safety and Health Legislation (LEGOSH), ILO, Geneva.

Become part of the ILO CIS Network!

Something missing? Please contact us at cis@ilo.org. Legal experts from OSH agencies, institutions, universities, research centres and other organizations from around the world are highly encouraged to become partners, content contributors or key sources of information on OSH legislation development to ensure this database is reliable and up-to-date.

Database of Occupational Safety and Health Legislation (LEGOSH) Disclaimer:

Summaries and full texts in the LEGOSH Database are provided for information purposes only and are not intended to replace consultation of the authentic legal texts. We update the database regularly but are unable to guarantee that the laws it contains are always complete, accurate and the most recent version. Please contact us if you have updated information. For information purposes, the Database contains links to other websites. Their inclusion does not signify responsibility for, or approval of, their content by the ILO.

The database has been implemented with the financial assistance of the Republic of Korea under the Korea-ILO Partnership Programme. The views expressed herein can in no way be taken to reflect the official opinion of the Republic of Korea.
ILO policy on the improvement of working conditions and environment

- Work should take place in a safe and healthy working environment;
- Conditions of work should be consistent with workers' well-being and human dignity;
- Work should offer real possibilities for personal achievement, self-fulfilment and service to society.
Basic Principles in Occupational Safety and Health

- Responsibilities of the employer
- Role of the competent authority
- Basic workers' rights
New ILO initiative on OSH

OSH Global Action for Prevention

☑️ To be funded by extra-budgetary contributions
☑️ To support our constituents, particularly in low and lower-middle income countries, in strengthening national OSH systems.
The new program has four main objectives:

- Building effective regulation of workplace risks through sound OSH legislative frameworks;
- Strengthening knowledge for prevention through capacity building in the area of data collection and analysis for strategy-making purposes;
- Developing effective dialogue for improved safety and health at work among governments, employers and workers organizations; and
- Improving financing modalities for national OSH systems to achieve secure and sustainable funding, including through economic incentives for compliance and investment in prevention as well as linkage with employee injury insurance schemes.
The eight ILO Areas of Critical Importance (ACIs)

1. Promoting more and better jobs for inclusive growth;
2. Jobs and skills for youth;
3. Creating and extending social protection floors;
4. Productivity and working conditions in SMEs;
5. Promoting decent work in the rural economy;
6. Formalization of the informal economy;
7. Strengthening workplace compliance through labour inspection; and
8. Protecting workers from unacceptable forms of work.

Each of them seeks to respond to situations:
- which are major and topical, affecting large numbers of employers and workers and of high concern in a significant number of countries;
- where the need for change is evident and where the ILO can make a difference; and
- which have been the subject of Conference, Governing Body or Regional Meeting decisions or concerns otherwise expressed by constituents.
Let us work together for the realization of

**Decent Work = Safe Work**

Thank you!