

Forum II

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Intergovernmental Forum on Chemical Safety

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Harmonization of classification and labelling of chemicals
Progress report on the ongoing technical work

**Sponsored by: IOMC Coordinating Group for the Harmonization of Chemical Classification
Systems (CG/HCCS)**

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Introduction

1. The current technical work of preparing harmonized proposals for classification criteria, tests and hazard communication is carried out essentially by a number of interested countries and non-governmental organizations. This is done through and coordinated by three focal points, namely the ILO, the OECD and the UN ECOSOC Committee of Experts on Transport of Dangerous Goods. Overall planning and management of the project is done through the IOMC Coordinating Group for the Harmonization of Chemical Classification Systems.

2. The most recent progress reports from each of the focal points are presented in separate Annexes. Also included are a listing of the overall harmonization activities assigned to each focal point, a list of the countries, NGOs and experts involved and a short bibliography of the key technical and policy documents produced recently.

3. This progress report is intended to serve as a background document for document IFCS/FORUM-II/97.12w Rev.1 dated 18 October 1996 and titled: “*Progress made toward a globally harmonized system (GHS) for the classification and labelling of chemicals*”.

Harmonization of classification and labelling of chemicals

Progress report on the ongoing technical work

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SECTION 1

AREAS OF HARMONIZATION ACTIVITIES

and

OVERALL PARTICIPATION

AREAS OF HARMONIZATION ACTIVITIES
Listed by Focal Point

HEALTH HAZARDS AND DANGER TO THE ENVIRONMENT **Focal point: OECD AGHCL**

Hazardous to the Aquatic Environment	AGHCL Working Group
Hazardous to the Terrestrial Environment	
Acute Toxicity	
Irritation/Corrosion of Biological Tissue (eye, skin)	Germany/USA
Sensitization	Sweden/Germany
Reproductive Toxicity	Australia/UK
Germ Cell Mutagenicity	Netherlands/UK/Germany
Carcinogenicity	Norway/Netherlands
Long-term Systemic Toxicity	Belgium/USA
Neurotoxicity and Immunotoxicity	

METHODOLOGY **Focal point: OECD**

Classification of mixtures/preparations	Lead country: Canada
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PHYSICAL HAZARDS **Focal point: UN CETDG/ILO**

Reactivity	Working Group chaired by the United Kingdom
Flammability	Working Group chaired by Germany
Related Tests and Criteria	UN CETDG

HAZARD COMMUNICATION **ILO/CIS**

Labelling: minimum data element requirements; graphic hazard symbols (pictograms, colours, frames); comprehensibility of written and graphic hazard warnings; method for the selection of proper hazard symbols and risk and safety phrases.

Chemical safety data sheets: format; data elements; harmonization of phraseology; phraseology comprehensibility; means of dissemination on a worldwide basis.

Training in hazard communication: (workplace, transport, consumers). harmonization of principles for the elaboration of training packages for compilers and users.

PARTICIPATION IN THE IOMC CG/HCCS

COUNTRIES

AUSTRALIA	Worksafe Australia
BRAZIL	Ministry of Labour
CANADA	Human Resources Development Canada - Labour Program
INDIA	Ministry of Environment and Forests
JAPAN	Ministries of Health, Environment, Labour and Industry
USA	Occupational Safety and Health Administration
UK	Health and Safety Executive
SWEDEN	National Chemicals Inspectorate (KEMI)
NEW ZEALAND	

Note: The participation of China, the Russian Federation and South Africa is being sought.

INTERNATIONAL ORGANIZATIONS/PROGRAMMES

World Health Organization (WHO)
International Labour Office (ILO)
Food and Agriculture Organization of the UN (FAO)
United Nations Environment Programme (UNEP)
International Maritime Organization (IMO)
International Civil Aviation Organization (ICAO)
UN ECE Committee of Experts on Transport of Dangerous Goods (UN CETDG)
Organization for Economic Co-operation and Development (OECD)

REGIONAL BODIES

Commission of the European Union (CEU)

NON GOVERNMENTAL ORGANIZATIONS

International Council of Chemical Associations (Japan, Canada, USA, Australia, Europe)
International Council on Metals and the Environment (ICME)
International Organization of Employers (IOE)
Hazardous Materials Advisory Council (HMAC, USA)
International Federation of Chemical, Energy and General Workers' Union (ICEF)
International Confederation of Free Trade Unions (ICFTU)
World Wide Fund for Nature (WWF)
International Organization of Consumers Unions (IOCU)
International Social Security Association, (ISSA)

FOCAL POINTS

OECD	Health hazards and danger to the environment
UN CETDG/ILO	Physical hazards (reactive and flammable materials)
ILO	Hazard communication

SECRETARIAT International Labour Office, Occupational Safety and Health Branch

PARTICIPATION IN THE OECD AGHCL

Country	Institution
Australia	Commonwealth Environment Protection Agency - Worksafe Australia
Austria	Federal Environment Agency
Belgium	Institute of Hygiene and Epidemiology
Canada	Environment Canada and Health Canada
Czech Republic	Ministry of Environment
Denmark	Danish Environmental Protection Agency
Finland	National Board of Waters and Environment and Ministry of Social Affairs and Health
France	Ministry of Environment
Germany	Institute for Health Protection of Consumers and Veterinary Medicine, Federal Environment Agency, Ministry of Environment
Greece	Division of Environment
Hungary	Ministry of Environment
Ireland	Health & Safety Authority
Italy	Institute of Health
Japan	Environment Agency
Mexico	Ministry of Social Development
Netherlands	Ministry of Welfare, Health & Cultural Affairs National Institute of Public Health and Environmental Protection, TNO
Norway	Pollution Control Authority, National Institute of Public Health and Institute of Cancer Research
Spain	Ministry of Environment and Ministry of Health and Consumers
Sweden	National Chemicals Inspectorate and Rescue Services Agency
Switzerland	Federal Office of Environment, Forests & Landscape
Turkey	Poison Research Department
UK	Department of Environment, Health & Safety Executive and Department of Transport
USA	Environment Protection Agency, Department of Transportation, Occupational Safety and Health Administration, Consumer Product Safety Commission, Food and Drug Administration, National Institute of Environmental Health Sciences
International bodies	ILO, IMO, UN-CETDG, IPCS (WHO, ILO, UNEP), IRPTC (UNEP), EC,
Industry (BIAC)	ICME, Eurometaux, CEFIC, ECETOC, ICCA, Shell, Exxon, Hoechst

**PARTICIPATION IN THE UN ECOSOC CETDG
and the ILO/CETDG Working Groups on harmonization of criteria for physical hazards
(based on attendance to the December 1996 19th Session)**

Countries with right to vote

Argentina; Australia; Belgium; Brazil; Canada; China; France; Germany; India; Italy; Japan; Mexico; Netherlands; Norway; Poland; Russian Federation; Spain; Sweden; United Kingdom; United States of America.

Countries with observer status

Austria, the Czech Republic, Finland, Iran (Islamic Republic of), Panama, Portugal, Slovakia, South Africa, Switzerland. Tunisia and the Ukraine participated in accordance with rule 72 of the rules of procedure of the Economic and Social Council.

UN specialized agencies and programmes

United Nations Environment Programme (UNEP), International Labour Organization (ILO); International Maritime Organization (IMO); International Civil Aviation Organization (ICAO); World Health Organization (WHO).

Intergovernmental organizations

European Commission (EC), International Civil Defense Organization (ICDO), Central Office for International Carriage by Rail (OCTI), Organization for Economic Co-operation and Development (OECD) and the Committee of the Organization for Co-operation between Railways (OSZhD).

Non-governmental organizations

European Chemical Industry Council (CEFIC), European Confederation of Paint, Printing Ink and Artists' Colours Manufacturers' Associations (CEPE), European Industrial Gases Association (EIGA), European Fertilizer Manufacturers' Association (EFMA), Federation of European Aerosol Association (FEA), Hazardous Materials Advisory Council (HMAC), International Air Transport Association (IATA), International Council of Intermediate Bulk Container Associations (ICIBCA), International Confederation of Drum Reconditioners (ICDR), International Road Transport Union (IRU), International Organization for Standardization (ISO), European Portable Tank Association/Tank Container Association (EPTA/TCA).

SECTION II

PROGRESS REPORT OF THE OECD ADVISORY GROUP ON HARMONIZATION OF CLASSIFICATION AND LABELLING

PROGRESS REPORT OF THE OECD ACTIVITIES ON HARMONIZATION OF CLASSIFICATION AND LABELLING SYSTEMS FOR CHEMICALS

General

1. The 3rd Meeting of the Advisory Group on Harmonization of Classification and Labelling Systems (AG-HCL) was held on 20th-21st June 1996. The AG-HCL agreed on the final wording for explanatory text to the Terms of Reference of the Programme. The meeting also agreed on a revision of the Schedule of Activities in order to enable submission of agreed proposals to the 25th and 26th Joint Meeting, respectively. At the request of Member countries, the schedule of activities was again revised after the Summer in order to allow sufficient time in Member countries to review the various proposals and discuss National Positions with all agencies involved as well as with all relevant industry associations. According to the revised schedule of activities, consensus should be reached on harmonized classification criteria and classification categories/classes for all endpoints for which OECD is the Focal Point before or at the 27th Joint Meeting in February 1998.

2. The 25th Joint Meeting agreed that the preferred strategy to arrive at overall consensus on all criteria and classes for all endpoints by the end of 1997 would be a three step strategy: i) to reach consensus on as many criteria as possible for each separate endpoint, striving at making similar progress for all endpoints; ii) to reach as much agreement as possible on all still outstanding issues during a "high level" Advisory Group Meeting in late 1997, and iii) to submit to the 27th Joint Meeting in February 1997, for their approval the final proposal for a harmonized classification system, integrating the criteria for all endpoints. The Joint Meeting will discuss the proposal during a "special session" and will make final decisions on unresolved issues, if any.

Classification of Substances Hazardous to the Aquatic Environment

3. A Tripartite Writing Party led by the European Commission was convened in January 1996 which prepared a framework for a revised proposal for a harmonized classification system. Next, this proposal was further elaborated at two successive Working Group Meetings in April 1996 in Washington and in October 1996 in Paris, respectively. Although many issues were solved during these meetings, there are still differences of opinion on a number of basic elements in the revised proposal for a harmonized classification scheme.

Classification of Substances Based on Acute Toxicity

4. An Options Paper was discussed at the 3rd AG-HCL. Discussions centered on how to proceed with consensus building over the "grey boxes" in the proposed scheme, with some countries favouring a step-by-step (box-by-box) approach for the individual grey boxes while others preferred to negotiate an overall package deal for acute toxicity. It appeared that any further progress in this area would only be possible when Member countries would have a better insight in how the differences in opinions on criteria for other end-points had been resolved. As a consequence, the work on acute toxicity was intentionally delayed in order to allow the work on other endpoints to catch up.

Classification of Substances Based on Dermal Irritation/Corrosion

5. A document representing both a Step 1 Detailed Review Document (DRD) and a Step 2 proposal was drafted by the US with assistance of Germany. The document was considered by the 3rd AG-HCL in June. It was decided that further refinement was needed and that it should be less detailed with respect to testing methods. A revised Step 1 DRD and Step 2 proposal for a harmonized classification system taking into account the recommendations made by the 3rd AG-HCL as well as comments received from Member countries has been drafted by the US and was circulated for comment in December 1996. This revised proposal will be discussed at the 4th AG-HCL in March 1997.

Classification of Substances Based on Eye Irritation/Corrosion

6. A combination Step 1 DRD and Step 2 proposal for a harmonized classification system was drafted by Germany with assistance of the US. The proposal was discussed at the 3rd AG-HCL. The proposal suggested the use of two hazard classes based on reversibility of effects. The 3rd AG-HCL discussed whether reversibility was a suitable parameter given that work in the area of eye irritation testing was moving towards *in vitro* testing and that severity of the effect may be more appropriate. Based on the discussion at the 3rd AG-HCL, Germany revised the Step 2 proposal. The revised proposal was circulated to Member countries in January 1997 and will be discussed at the 4th AG-HCL in March 1997.

7. The 3rd AG-HCL approved the Step 1 DRD part of the German document with some minor changes only. This DRD will be circulated for derestriction and subsequently published in the Monograph Series on Testing and Assessment.

Classification of Substances Based on Sensitisation

8. A revised Step 1 DRD and a Step 2 proposal for a harmonized classification system were provided by Sweden. Germany had assisted in drafting these documents. They were revised based on comments received from Member countries following the 3rd AG-HCL in June. The revised Step 1 DRD was approved by the 3rd AG-HCL without any changes. After derestriction by the Joint Meeting, it will be published in the Monograph Series on Testing and Assessment.

9. With respect to the Step 2 proposal, the 3rd AG-HCL agreed that there should be no separation of categories based on potency; consequently, for contact sensitizers there should be no distinction between strong and moderate sensitizers. In addition, the role of human studies and whether or not these studies would take precedence over animal tests were discussed at the 3rd AG-HCL. Additional comments on the Step 2 proposal received after the 3rd AG-HCL have been considered by Sweden when drafting the revised Step 2 proposal. This revised proposal was circulated to the Member countries in December 1996 and will be discussed at the 4th AG-HCL.

Classification of Substances Based on Reproduction Toxicity

10. Revised versions of the Step 1 DRD and Step 2 proposal for a harmonized classification system were provided by Australia and the UK. The revised Step 2 proposal was based on comments received following the discussion at the 2nd Advisory Group meeting and written comments received after that meeting. The revised Step 1 DRD was approved by the 3rd AG-HCL without further changes and will be published after derestriction by the Joint Meeting in the Monograph Series on Testing and Assessment.

11. The debate at the 3rd AG-HCL of the revised Step 2 proposal for a harmonized classification system focused on the number of classes, the coverage of maternal toxicity, consideration of threshold values and terminology used. Most delegates preferred a two-step approach. The first step would be a hazard-based classification system of two classes, one of which could be subdivided into two subclasses. The second step would be a further subdivision of the agreed (sub)classes taking into account threshold values for reproduction toxicity. Based on the discussions at the 3rd AG-HCL and on comments received in writing after that meeting, a newly revised Step 2 proposal was drafted by the UK. The new proposal was circulated to Member countries in December 1996 and will be discussed at the 4th AG-HCL.

Classification of Substances Based on Germ Cell Mutagenicity

12. The Step 1 DRD, drafted by the Netherlands with support of UK, US and Germany was considered by the Advisory Group. It has been slightly revised to take into account later comments received from New Zealand, and was circulated for final approval under written procedure in December 1996. After approval and subsequent

derestriction by the Joint Meeting it will be published in the Monograph Series on Testing and Assessment.

13. The Step 2 proposal for a harmonized classification system, also drafted by the Netherlands, UK, US and Germany was presented and discussed at the 3rd AG-HCL in June. Some representatives recommended that the classification system should comprise two rather than three categories with a subdivision of the first category into two subcategories. It was also recommended that there should be a link between the carcinogenicity classification scheme and this mutagenicity scheme. Comments on the proposal were only minor and the revised version of the document was circulated to the Member countries in December 1996. The revised proposal will be discussed at the 4th AG-HCL.

Classification of Substances Based on Carcinogenicity

14. A revised Step 2 proposal was drafted by Norway, taking into account the discussion at the 2nd AG-HCL in January 1996 and the comments received from Member countries in writing after the 2nd AG-HCL. The revised proposal was presented at the 3rd AG-HCL where it was greatly appreciated. The report from the Working Group Meeting on this subject of October 1995 was added to the revised Step 2 proposal for background information. The 3rd AG-HCL suggested that all text referring to labelling should be removed from the proposal. Further, the 3rd AG-HCL did not support the inclusion of a list of carcinogenic substances ranked by potency as was mentioned in the report of the Working Group Meeting.

15. The lead countries (Norway and the Netherlands) have revised the Step 2 proposal for a harmonized classification system. Since the information provided in the Working group was considered highly relevant, this report will be attached as an Annex to the proposal. The revised proposal was made available to the Member countries in December 1996 and will be discussed at the 4th AG-HCL.

Classification of Substances Based on Systemic Organ Toxicity

16. Initial drafts of both the Step 1 DRD and Step 2 Proposal for a harmonized classification system were prepared by Belgium and discussed at the 3rd AG-HCL in June. It was agreed that both the Step 1 DRD and the Step 2 proposal need further work and the US offered to assist Belgium undertaking this task. However, more input is needed and Member countries were requested to submit comments on the current documents as well as their suggestions for possible approaches to either Belgium or the Secretariat. Revised and "fuller" versions of the Step 1 and Step 2 documents will be made available for discussion at the 4th AG-HCL.

Classification of Substances Based on Endpoints not yet Covered by Current Classification Systems

17. Work is underway in the Test Guidelines and Hazard Assessment Programmes on testing and assessment of neurotoxicity and terrestrial effects. A report from the Nordic Group on Classification Criteria for Terrestrial environment is currently being reviewed by the RAAB and substantial comments have already been received. A Neurotoxicity Guidance document prepared by an *ad hoc* Working Group of the Test Guidelines Programme is a first draft and considerable work still needs to be done. The Guidance Document itself will not include a proposal for a classification system. It will be used, however, as the basis for developing such a system at a later stage. An OECD Working Group on Immunotoxicity Testing and Assessment met in December 1996 in the US and made initial proposals for major elements of a new classification system for immunotoxic chemicals.

SECTION III

REPORT OF THE UNCETDG/ILO WORKING GROUPS ON HARMONIZED CLASSIFICATION CRITERIA FOR REACTIVITY AND FLAMMABILITY



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COMMITTEE OF EXPERTS ON THE
TRANSPORT OF DANGEROUS GOODS

REPORT OF THE COMMITTEE OF EXPERTS
ON ITS NINETEENTH SESSION
(2-10 December 1996)

ADDENDUM 4

Annex 6

Report on the work of the joint ILO/UN working groups on harmonised
classification criteria for flammability and reactivity

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ANNEX 6

Report on the work of the joint ILO/UN working groups on harmonised classification criteria for flammability and reactivity

INTRODUCTION

1. In Rio de Janeiro in 1992 the United Nations Conference on the Environment and Development (UNCED) adopted, inter alia, Agenda 21, Chapter 19. This chapter concerns the environmentally sound management of toxic chemicals, including prevention of illegal international traffic in toxic and dangerous products, and contains Programme Area B, the objectives of which are the availability, if feasible, by the year 2000, of a globally harmonized system of hazard classification and compatible labelling of chemicals. The globally harmonized system of classification should be used for all classification purposes whatever the regulatory context may be (safe use of dangerous substances at the workplace or at the home; safe handling or transport; protection of the environment; etc.).

2. Following that decision, international organisations and fora concerned decided to group the different criteria and to establish focal points to develop proposals for harmonised criteria on the basis of existing classification systems and existing sets of criteria.

3. For physico-chemical hazards, the International Labour Office (ILO) and the United Nations Economic and Social Council's Committee of Experts on the Transport of Dangerous Goods agreed to form two joint working groups in December 1994, one for criteria for reactivity of substances and one for criteria for flammability of substances.

4. In accordance with the UN Economic and Social Council's resolution 1995/6, both working groups held three sessions in July 1995, December 1995 and in July 1996. All delegations represented in the Committee of Experts on the Transport of Dangerous Goods and representatives from ILO took part in the work. The working groups concentrated on hazard levels, classification criteria and testing methods for the different hazard categories and criteria. Existing internationally recognized classification regimes and sets of criteria for the various types of protection were taken into account.

5. The reports of the working groups on each session were circulated by the United Nations secretariat respectively in documents ST/SG/AC.10/C.3/20/Add.2, ST/SG/AC.10/C.3/22/Add.2 and ST/SG/AC.10/C.3/24/Add.3.

WORKING GROUP ON HARMONIZED CLASSIFICATION CRITERIA FOR FLAMMABILITY

Scope of work

6. The work covered definitions, testing methods and criteria for flammable solids, flammable liquids, flammable gases and for the flammable properties of aerosols. The working group, chaired by Mr. G. Oberreuter (Germany), defined suitable sets of hazard levels for each criterion, taking into account the risks and danger potential in all areas of use of these classes of dangerous substances.

7. In some cases, it was discovered that certain dangerous substances or groups of substances exist, which are regarded as presenting a certain hazard by experience and expert judgement on a case by case basis, but which do not fit the defined criteria for the general dangerous properties of substances.

8. For gases, the UN Recommendations on the Transport of Dangerous Goods contains definitions of the physical state, e.g. refrigerated, liquefied; these are used to determine suitable transport conditions. It is suggested that there is no need to use such definitions for classification in other regulatory systems.

Results

9. After three sessions, the working group agreed by consensus on definitions to distinguish between solids, liquids and gases, and on the hazard levels and the correlated sets of criteria and cut-off values, as listed in annexed Tables 1 to 4. All criteria and values are based on existing and internationally accepted test methods, as indicated in the annexed tables. They may be applied, in the same manner, to pure substances as well as to mixtures and solutions such as formulations, preparations and wastes, according to the physical state (liquid, solid or gaseous) as indicated in the tables.

10. Further work is needed on the definition and the criteria for the flammable properties of aerosols (Table 5 to be completed).

WORKING GROUP ON HARMONIZED CLASSIFICATION CRITERIA FOR REACTIVITY

Scope of work

11. This work covered the remaining physico-chemical classification criteria not dealt with by the working group on harmonized classification criteria for flammability. This meant focusing on the definitions, test methods and criteria for explosive properties, organic peroxides, oxidisers, pyrophoricity, ability to self-heat, self-reactive and related substances, special groups of substances like desensitized explosives, ammonium nitrate and ammonium nitrate fertilizers as well as substances which emit toxic and flammable gases when in contact with water. The working group was chaired by Mr. R. Woodward (United Kingdom).

Results

12. At the end of the third session tables were devised, in line with those produced by the flammability working group on harmonized classification criteria for flammability, setting out the consensus reached on hazard categories, tests and criteria (see annexed Tables 6 and 7). They may be applied, in the same manner, to pure substances as well as to mixtures and solutions such as formulations, preparations and wastes, according to the physical state (liquid, solid or gaseous), as indicated in the tables.

13. The tables also indicate a number of issues upon which it was not possible to reach a consensus. This was either due to lack of time to complete the discussion or in some cases where the divergence of views from delegations required further thought to be given to the formulation of proposals for harmonization. The results set out in the tables, none the less, indicate a good deal of progress and some cause for optimism that, with further work, a more complete set of criteria can be produced.

PROPOSALS

14. Tables 1 to 7 contain proposals for definitions, classification criteria and cut off values for the hazards relating to the properties dealt with under flammability and reactivity where consensus has been reached. They also identify the areas where consensus was not forthcoming and where further work will be needed.

15. The Committee of Experts on the Transport of Dangerous Goods at its nineteenth session (2-10 December 1996) took note of the progress made so far and agreed with the proposals where consensus had been reached. The Committee agreed that the work should be pursued in 1997 to solve the remaining issues as indicated in this report.

16. The Committee agreed that this report and the proposals should be brought to the attention of the Intergovernmental Forum on Chemical Safety by ILO.

ANNEX

- Table 1:** Proposal for definitions of gases, liquids and solids
- Table 2:** Proposal for hazard levels for the classification of flammable liquids
- Table 3:** Proposal for hazard levels for the classification of flammable solids
- Table 4:** Proposal for hazard levels for the classification of flammable gases
- Table 5:** Proposal for definition and criteria for the flammability of aerosols
- Table 6:** Proposal for tests and criteria for reactive substances
- Table 7:** Proposal for definitions for reactive properties

NOTES to Tables 6 and 7

Table 1: Proposal for definitions of gases, liquids and solids

Definitions	
Definition of gases and gas mixtures (substances, mixtures and solutions with a lower vapour pressure are regarded as liquids)	Vapour pressure at 50 °C > 300 kPa or completely gaseous at 20 °C (at standard pressure of 101.3 kPa)
Definition of liquids (substances not falling under this definition are regarded as solids)	Melting point ≤ 20 °C at 101.3 kPa or for viscous substances without a defined melting point, test according to ASTM D 4359-90 or penetrometer test as prescribed in Annex A.3 of the ADR*/ with penetrometer according to ISO 2137:1985

*/ European Agreement concerning the International Carriage of Dangerous Goods by Road (ECE/TRANS/115, United Nations publication Sales No. E.96-VIII-2).

Table 2: Proposal for hazard levels for the classification of flammable liquids

Level	Uniform hazard description	Characteristics	Testing methods
Very high danger	To be developed	Initial boiling point ≤ 35 °C and flashpoint < 23 °C	Closed cup methods to be used, open cup methods only acceptable in special cases (may be determined)
High danger	To be developed	Flashpoint < 23 °C and initial boiling point > 35 °C	
Medium danger	To be developed	Flashpoint ≥ 23 °C and ≤ 60 °C	
Low danger	To be developed	Flashpoint > 60 °C and ≤ 93 °C	

Note: Gas oils, diesel and light heating oils in the flashpoint range of 55 °C to 75 °C may be regarded as a special group for some regulatory purposes.

Table 3: Proposal for hazard levels for the classification of flammable solids

Level	Uniform hazard description	Criteria	Testing methods
High danger	Not applicable	-	-
Medium danger	To be developed	<p>Screening test: testing time 2 min (20 min for metal powders)</p> <p>Burning rate test:</p> <p>Substances other than metal powders: wetted zone does not stop fire and burning time < 45 s or burning rate > 2.2 mm/s</p> <p>Metal powders: burning time ≤ 5 min</p>	Method as described in section 33.2.1 of the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria ^{*/}
Low danger	To be developed	<p>Method and test as described above</p> <p>Burning rate test</p> <p>Substances other than metal powders: wetted zone stops the fire for at least 4 minutes and burning rate < 45 s</p> <p>Metal powders : burning time > 5 min and ≤ 10 min</p>	

^{*/} ST/SG/AC.10/11/Rev.2, United Nations publication sales No.E.95.VIII.2.

Table 4: Proposal for hazard levels for the classification of flammable gases

Level	Uniform hazard description	Characteristics and test methods
High danger	To be developed	Gases and gas mixtures, which at 20 °C and a standard pressure of 101.3 kPa, (a) are ignitable when in a mixture of 13 % or less by volume in air; or (b) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit. Flammability should be determined by tests or by calculation in accordance with methods adopted by ISO (see ISO 10156:1996). Where insufficient data are available to use these methods, tests by a comparable method recognized by the competent authority may be used.
Medium danger	To be developed	Gases or gas mixtures, other than those of high danger, which, at 20 °C and a standard pressure of 101.3 kPa, have a flammable range in mixture in air.
Low danger	Not applicable	Not applicable

Note: Ammonia and methyl bromide may be regarded as special cases for some regulatory purposes.

Table 5: Proposal for definition and criteria for the flammability of aerosols

The working group on harmonized classification criteria for flammability agreed to include a definition and criteria for the flammability of aerosols in the proposal for the global harmonization. However technical discussions could not be finished and this issue will need further consideration.

TABLE 6 - TESTS AND CRITERIA for reactive substances				
HAZARD CATEGORY	PHYSICAL STATE	PROPERTY	TESTS AND CRITERIA	COMMENTS
Explosive	Solid or liquid	Explosibility	According to UN test series 2 (Chapter 12)*	Intentional explosives not subject to UN test series 2 UN transport system differentiates into subdivisions 1.1 to 1.4 and compatibility groups A to S to distinguish technical requirements
		Sensitiveness	According to UN test series 3 (Chapter 13) *	
		Thermal stability	According to UN test series 3(c) (Sub-section 13.6.1) *	
Organic peroxide	Solid or liquid	Oxidising	1. The UN scheme, test series A to H (Part II of the Manual of Tests and Criteria) *, but sub-divisions may not be necessary for all systems. 2. Lower cut-off level was not agreed, and will need to be resolved.	The difference between the EU Supply side lower cut off value and that for the UN transport system needs further discussion.
		Explosibility		
		Sensitivity		
		Thermal stability		
Oxidising	Solid	Oxidising	UN Test 0.1 (Sub-section 34.4.1) *	
	Liquid	Oxidising	UN Test 0.2 (Sub-section 34.4.2) *	
	Gases	Oxidising	To be developed	Possibility of using ISO 10156. Further work on this is being carried out.
Pyrophoric	Solid	Pyrophoricity	UN Test N2 (Sub-section 33.3.1.4) *	

* Refer the Recommendations on the Transport of Dangerous Goods, Manual of Test and Criteria (ST/SG/AC.10/11/Rev.2, United Nations publication, Sales No. E.95.VIII.2).

TABLE 6 - TESTS AND CRITERIA for reactive substances

HAZARD CATEGORY	PHYSICAL STATE	PROPERTY	TESTS AND CRITERIA	COMMENTS
	Liquid	Pyrophoricity	UN Test N3 (Sub-section 33.3.1.5) *	

TABLE 6 - TESTS AND CRITERIA for reactive substances				
HAZARD CATEGORY	PHYSICAL STATE	PROPERTY	TESTS AND CRITERIA	COMMENTS
Self-heating	Solid	Self-heating	UN Test N4 (Sub-section 33.3.1.6) *	Different hazard levels in UN Scheme.
Self-reactive	Solid or liquid	Explosibility Sensitivity Thermal stability	UN Test Series A to H (Part II of the Manual of Tests and Criteria) *	Systems not based on the UN should consider a separate classification for self-reactive substances.
Substances related to self-reactive substances and de-sensitised explosives.	Solid or liquid	Explosibility Sensitivity Thermal stability	To be based on UN tests *, but further discussion required.	1. Harmonisation should be based on UN but further improvements need to be discussed. 2. De-sensitised explosives should be a clearly identifiable category. Considerably more work required to resolve this issue.
React with water giving flammable gases.	Solid or liquid	Reactivity to produce flammable gas	UN Test N5. (Sub-section 33.4.1.4) *	Test N5 procedure amended slightly.
React with water giving toxic gases	Solid or liquid	Reactivity to produce toxic gas		Discussion started, but further information and work required.

* Refer the Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria (ST/SG/AC.10/11/Rev.2), United Nations publication, Sales number E.95.VIII.2).

Table 7: Proposal for definitions for reactive properties

HAZARD CATEGORY OR GROUP OF SUBSTANCES OR ARTICLES	PHYSICAL STATE	DEFINITION
Explosive	Solid or liquid	<p>Solid or liquid substances (or mixtures of substances) which are in themselves capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings, including pyrotechnic substances.</p> <p>Articles containing one or more explosive substances, except devices containing explosive substances in such quantity or of such a character that their inadvertent or accidental ignition shall not cause any effect external to the device either by projection, fire, smoke, heat or loud noise.</p> <p>Substances or articles which are manufactured with the view to producing a practical explosive or pyrotechnic effect;</p> <p>Note: a pyrotechnic substance is a substance or mixture of substances designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as the result of non-detonative self-sustaining exothermic chemical reactions. Pyrotechnic substances are regarded as explosive substances even when they do not evolve gases.</p>
Self-reactive	Solid or liquid	Thermally unstable substances liable to undergo a strongly exothermic decomposition even without participation of oxygen (air). (Excludes organic peroxides and substances which are explosive or oxidising.)
Pyrophoric	Solid or liquid	Substances which, even in small quantities, are liable to ignite within a short period of time after coming into contact with air.

HAZARD CATEGORY OR GROUP OF SUBSTANCES OR ARTICLES	PHYSICAL STATE	DEFINITION
Self-heating	Solid or liquid	Substances other than pyrophoric substances which, in contact with air and without energy supply, are liable to self-heating; these substances will ignite only when in large amounts and after long periods of time.
Oxidising	Solid or liquid	Substances which, while in themselves not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other material.
	Gaseous	Gases which may, generally by providing oxygen, cause, or contribute to, the combustion of other material more than air does.
Emission of flammable gases in contact with water	Solid or liquid	Substances which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.
Organic peroxides	Solid or liquid	Organic substances which contain the bivalent - O-O - structure and may be considered derivatives of hydrogen peroxide, where one or both of the hydrogen atoms have been replaced by organic radicals.
Substances related to self-reactives	Solid, liquid	No consensus reached, discussions not finished
De-sensitised explosives	Solid, liquid	No consensus reached, discussions not finished

Note: It has been suggested that ammonium nitrate and ammonium nitrate containing fertilizers represent a special case. Further discussion will be needed to reach a consensus.

NOTES TO TABLES 6 AND 7

NOTE 1: It was recognised that the physical form in which a substance is tested can affect its classification. The UN tests are carried out in the form presented for transport, whereas other tests - especially for handling and use e.g. according to directive 67/548/EEC - may require grinding to a reference standard which gives better information on the comparative intrinsic properties of substances. Before this matter can be completely resolved further discussion is needed.

NOTE 2: Screening procedures should be developed and published as voluntary guidance to minimise the cost of testing products.

NOTE 3: The use of the word "explosive" can have different meanings and interpretation. Reference to "an explosive" or "explosives" is commonly understood to mean substances or articles in Class 1 of the UN scheme, that is those which are intentional explosives or have properties which when assessed under the UN procedure place them in Class 1. The description "explosive" can, however, be used to describe a property and as such it encompasses a wider range of substances than just those in Class 1, for example, substances related to self-reactive substances. The global harmonisation exercise requires that classification is based on intrinsic properties and the word 'explosive' in that context can be used to describe the property of a substance i.e. 'its ability to explode', as well as referring to a substance or article that has been designed to have explosive properties. This can lead to confusion and difficulty but in the above table 'explosive' refers to substances or articles which would be placed in Class 1 of the UN scheme.

Further discussion might be needed on if and how to distinguish between the explosive properties of substances and articles designed and manufactured for explosive effects and covered by class 1 of the UN Recommendations on the transport of dangerous goods and the intrinsic property of substances being able to explode, e.g. as further intrinsic property of certain self-reactive substances or certain organic peroxides.

SECTION IV

REPORT ON HARMONIZATION OF CHEMICAL HAZARD COMMUNICATION TOOLS

ILO REPORT ON HARMONIZATION OF HAZARD COMMUNICATION TOOLS

1. During its meetings in 1995, the CG/HCCS agreed that the technical work of harmonizing chemical hazard communication tools should start only after harmonization of classification criteria and tests has been achieved. However, the Group also agreed that a survey of existing systems, with particular emphasis on the comprehensibility of these tools should be carried out to serve as a basis for further work.
2. In 1995 a call for information was launched by the ILO and the information received was summarized in a report destined to be integrated with another report being prepared by the US OSHA. The overall survey should be available during the first quarter of 1997 and distributed for comments before formal reviewing at the June meeting of the CG/HCCS.
3. In order to evaluate the chemical hazard communication issues and needs in developing countries, the ILO has launched a comprehensibility study to be carried out in 5 countries in Southern Africa. Extension of the study to 5 Asian and Latin American countries is also being considered. The study will be based on a previous project undertaken in Zimbabwe in 1992 and in which the level of comprehensibility of the UN CETDG and EC labelling schemes, and IPCS International Chemical Safety Cards by workers, plant supervisors and factory inspectors was evaluated through a questionnaire survey of about 100 persons. Results of the extended project should be available at the end of 1997.

SECTION V

LIST OF TECHNICAL DOCUMENTS PRODUCED RECENTLY

LIST OF TECHNICAL DOCUMENTS PRODUCED RECENTLY

NOTE: The following list is far from being exhaustive. It is provided only to illustrate the type of documents prepared by the different stakeholders and to give a better idea of the size and complexity of the task being undertaken

I. Key policy documents

ILO	Size of the task of harmonizing existing systems of classification and labelling for hazardous chemicals (1992)
IOMC CG/HCCS	Revised Terms of Reference and Work Programme (1996)
OECD	Terms of Reference for the Advisory Group on the Harmonization of Classification and Labelling (1996) (ENV/MC/CHEM/HCL/M (96)2/ANN3)

II. Formal OECD Documents

ENV/MC/CHEM/HCL(96)4	Hazardous to the Terrestrial Environment: Update of Current Activities
ENV/MC/CHEM/HCL(96)8	Proposal for a Harmonized Classification System for Substances Dangerous to the aquatic Environment
ENV/MC/CHEM/HCL(96)9	Background Document to the Proposal for a Harmonized Classification System for Substances Dangerous to the aquatic Environment
ENV/MC/CHEM/HCL(96)10	Options for progressing the work on acute toxicity classification towards consensus
ENV/MC/CHEM/HCL(96)12	Proposal for Harmonization of Hazard Classification based on eye irritation/corrosion
ENV/MC/CHEM/HCL(96)13	Revised Detailed Review Document on the Classification of Chemicals based on their Sensitising Properties
ENV/MC/CHEM/HCL(96)15	Revised Step 2 Proposal for a Harmonized Scheme for the Classification of Chemicals which cause Adverse Effects on Reproduction
ENV/MC/CHEM/HCL(96)19	Revised draft Step 1 DRD on the Classification of Chemicals on the basis of Systemic Organ Toxicity after repeated exposure
ENV/MC/CHEM/HCL(96)20	Draft Step 2 Proposal for a Harmonized system for the Classification of Chemicals which cause Systemic Organ Toxicity after repeated exposure
ENV/MC/CHEM/HCL(96)22	Combined Step 1 and Step 2: Proposal for a Harmonized System for the Classification of Chemicals which cause Skin Irritation - Corrosion

ENV/MC/CHEM/HCL(96)23	Revised Step 2 Proposal for a Harmonized System for the Classification of Chemicals which cause Eye Irritation - Corrosion
ENV/MC/CHEM/HCL(96)24	Step 2: Proposal for a Harmonized System for the Classification of Chemicals which cause Respiratory or Skin Sensitization
ENV/MC/CHEM/HCL(96)25	Step 2: Proposal for a Harmonized System for the Classification of Chemicals which cause Adverse Effects on Reproduction
ENV/MC/CHEM/HCL(96)26	Step 2: Proposal for a Harmonized System for the Classification of Chemicals which cause Mutations in Germ Cells
ENV/MC/CHEM/HCL(96)27	Step 2: Proposal for a Harmonized System for the Classification of Chemicals which cause Cancer
ENV/MC/CHEM/HCL(96)28	Step 1 DRD on Classification systems on Germ Cell Mutagenicity OECD countries: Similarities and Differences
Environment Monograph No. 88	US EPA/EC Joint Project on the Evaluation of (Quantitative) Structure Activity Relationships
Environment Monograph No. 92	Guidance Document for Aquatic Effects Assessment
Environment Monograph No. 105	Report of the OECD Workshop on Environmental Hazard - Risk Assessment

III. Discussion Documents Produced for OECD

Title

- Aquatoxicity Issue Paper No. 1 on transport, prepared by the US
- Aquatoxicity Issue Paper No. 2 on algae testing, prepared by the US
- Aquatoxicity Issue Paper No. 3 on the use of QSARs for aquatic toxicity, prepared by the US
- Aquatoxicity Issue Paper No. 4 on the use of chronic toxicity data, prepared by the US
- Aquatoxicity Issue Paper No. 5 on bioaccumulation, prepared by Canada
- Aquatoxicity Issue Paper No. 6 on transport in Europe, degradability and cut-off values for chronic toxicity, prepared by the UK
- Aquatoxicity Issue Paper No. 7 on the use of cut-off values of >1000 mg, prepared by the Netherlands
- Aquatoxicity Issue Paper No. 8 on the use of QSARs, prepared by Germany
- Aquatoxicity Issue Paper No. 9 on bioaccumulation, prepared by Denmark
- Aquatoxicity Issue Paper No. 10 on Pow values, noxious liquid substances and including the report of the 32nd session of the GESAMP Working Group, prepared by the Netherlands
- Aquatoxicity Issue Paper No. 11 on log Kow and BCF cut-off values, prepared by Denmark
- Aquatoxicity Issue Paper No. 12 on acute and prolonged toxicity, prepared by Germany.
- Aquatoxicity Issue Paper No. 13 on algal tests, prepared by the EC
- Report from the OECD Working Group on Harmonization of Classification and Labelling of Carcinogens

Report of the OECD Workshop on Aquatic Toxicity Testing of Sparingly Soluble Metals, Inorganic Metal Compounds and Minerals

Report of the Telephone Conference Call of the Working Group on Aquatic Toxicity

Discussion Paper Regarding Guidance for Terrestrial Effects Assessment

IV. Documents produced through the UN CETDG

Document number	Title
ST/SG/AC.10/C3/R388 from USA	Environmentally Hazardous Substances
ST/SG/AC.10/C3/R467 from USA	Harmonization of Criteria for Division 6.1 Substances
ST/SG/AC.10/C3/R523 from Germany	Classification of Environmentally Hazardous Substances
ST/SG/AC.10/C3/R574 from Norway	Classification of Environmentally Hazardous Substances
ST/SG/AC.10/C3/R583 from CEFIC	Environmentally Hazardous Substances, Criteria for Aquatic Pollutants
ST/SG/AC.10/C3/R589 from IPCS	Proposal on Harmonized Criteria for Aquatic Toxicity
ST/SG/AC.10/C3/R635 from UK	Report of the informal working group on environmentally hazardous substances
ST/SG/AC.10/C3/R653 from EC	Report of an informal meeting on inhalation toxicity
ST/SG/AC.10/C3/R661 from Argentina	Criteria for Environmentally Hazardous Substances
ST/SG/AC.10/C3/R664 from UK	Environmentally Hazardous Substances
ST/SG/AC.10/C3/R691 from Germany	Classification Criteria for Inhalation Toxicity
ST/SG/AC.10/C3/R707 from Argentina	Comments on ST/SG/AC.10/C3/R/664
ST/SG/AC.10/C3/R708 from Netherlands	Harmonized Criteria: Discussion paper
ST/SG/AC.10/R363 from USA	Report of the OECD Clearing House
ST/SG/AC.10/R457 from Germany	Classification Criteria for Toxicity

ST/SG/AC.10/R473
from Germany

Criteria for Environmentally Hazardous Substances

ST/SG/AC.10/R540
from HMAc

Classification based on Human Experience

V - Documents produced by other participants

ICCA

Discussion Paper on International Harmonization of
Environmental, Health & Physical Hazard Criteria

IMO

Report of the Expert Panel on Procedures for the Evaluation of
Hazards of Harmful Substances carried by Ships

EC-Canada

Report of the Technical Workshop on Biodegradation -
Persistence and Bioaccumulation - Biomagnification of Metals
and Minerals