



# **Audit Questionnaire Mercury**

**Health 6**

**2<sup>nd</sup> Edition**

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**EURO CHLOR PUBLICATION**

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## Euro Chlor

Euro Chlor is the European federation which represents the producers of chlorine and its primary derivatives.

Euro Chlor is working to:

- improve awareness and understanding of the contribution that chlorine chemistry has made to the thousands of products, which have improved our health, nutrition, standard of living and quality of life;
- maintain open and timely dialogue with regulators, politicians, scientists, the media and other interested stakeholders in the debate on chlorine;
- ensure our industry contributes actively to any public, regulatory or scientific debate and provides balanced and objective science-based information to help answer questions about chlorine and its derivatives;
- promote the best safety, health and environmental practices in the manufacture, handling and use of chlor-alkali products in order to assist our members in achieving continuous improvements (*Responsible Care*).

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Prior to 1990, Euro Chlor's technical activities took place under the name BITC (Bureau International Technique du Chlore). References to BITC documents may be assumed to be to Euro Chlor documents.

## RESPONSIBLE CARE IN ACTION

Chlorine is essential in the chemical industry and consequently there is a need for chlorine to be produced, stored, transported and used. The chlorine industry has co-operated over many years to ensure the well-being of its employees, local communities and the wider environment. This document is one in a series which the European producers, acting through Euro Chlor, have drawn up to promote continuous improvement in the general standards of health, safety and the environment associated with chlorine manufacture in the spirit of *Responsible Care*.

The voluntary recommendations, techniques and standards presented in these documents are based on the experiences and best practices adopted by member companies of Euro Chlor at their date of issue. They can be taken into account in full or partly, whenever companies decide it individually, in the operation of existing processes and in the design of new installations. They are in no way intended as a substitute for the relevant national or international regulations which should be fully complied with.

It has been assumed in the preparation of these publications that the users will ensure that the contents are relevant to the application selected and are correctly applied by appropriately qualified and experienced people for whose guidance they have been prepared. The contents are based on the most authoritative information available at the time of writing and on good engineering, medical or technical practice but it is essential to take account of appropriate subsequent developments or legislation. As a result, the text may be modified in the future to incorporate evolution of these and other factors.

This edition of the document has been drawn up by the Health Working Group to whom all suggestions concerning possible revision should be addressed through the offices of Euro Chlor.

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## INTRODUCTION

Health awareness within Chlor-Alkali industry is a significant part of its sustainable development. In this frame, it has been decided to provide audit questionnaires to contribute to the process of continuous improvement.

The purpose of this document is to produce a self-assessment guideline to evaluate the health risk management performance of a Chlor-Alkali plant with regard to mercury. This paper can be also used for external audits. It should include both workers and contractors conditions.

This document is derived from the Chemical Industry Association (CIA) document section 6 "Occupational Health Information – Check –up", and was adjusted in a way to that it can be used for mercury hazard situation.

The requirements for an appropriate health policy are based on the Euro Chlor recommendation:

- ***HEALTH 2 - Code of Practice: Control of Worker Exposure to Mercury in the Chlor-Alkali Industry***
- ***Env Prot 11 - Code of Practice - Mercury Housekeeping***
- ***National legislation for some aspects.***
- ***Company documents in native language in accordance with Health 2***

For each question, 4 answers are proposed:

- ❖ Answer a: minimal situation or at least 2 non-conformities to the reference document(s)
- ❖ Answer b: one non-conformity to the reference document(s) or several remarks
- ❖ Answer c: full compliance to the reference document(s)
- ❖ Answer d: extra work going beyond all the requirements of the reference document.

It is necessary to add comments for every question so that more justification can be discussed, especially for replies a, b and d.

# 1. ORGANISATION AND MANAGEMENT

a	b	c	d
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reference document:

➤ ***National regulations***

- a. No written Occupational Health policy regarding mercury
- b. Regarding Occupational Health, persons are nominated responsible and reports are written. Nothing is formally recorded
- c. Occupational Health policy and responsibilities regarding mercury written and all employees informed
  - ❖ Persons nominated and tasks delegated in writing
- d. In addition to c), some extra-work e.g.:
  - ❖ Reports used in the assessment of the quality management
  - ❖ Policy and practice subject to review at appropriate intervals.

Comments:

## 2. HEALTH HAZARD OF MERCURY

a	b	c	d
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reference documents:

- ***HEALTH 2 - Code of Practice: Control of Worker Exposure to Mercury in the Chlor-Alkali Industry***
- ***National regulations***
  - a. No document written
  - b. Document available for managers at least
  - c. Document regularly updated and used in training of workers
  - d. In addition to c), some extra-work e.g.:
    - ❖ Document used in information for visitors

Comments:

### 3. PERSONNEL HYGIENE STANDARDS

a	b	c	d
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reference documents:

- **HEALTH 2 - Code of Practice: Control of Worker Exposure to Mercury in the Chlor-Alkali Industry**
- **Env Prot 11 - Code of Practice - Mercury Housekeeping**
- **National regulations**

- a. Only informal recommendations given, nothing written
- b. Written hygiene standards
  - ❖ Assessment not fulfilling the requirements of Health 2
- c. Written hygiene standards according to Health 2
  - ❖ Training in housekeeping available and applied
- d. In addition to c, some extra-work e.g. :
  - ❖ Hygiene management system regularly audited and updated

Comments:



#### 4. BIO-MONITORING OF MERCURY EXPOSURE

a	b	c	d
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reference documents:

- ***HEALTH 2 - Code of Practice: Control of Worker Exposure to Mercury in the Chlor-Alkali Industry***
- ***National regulations***
- ***Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work***
  - a. No strategy for bio-monitoring
    - ❖ Little or no urinary mercury results
  - b. Current bio-monitoring data for all workers of the chlor-alkali plant
    - ❖ Documented monitoring methods, according to recognised protocols
    - ❖ Measurements done according to a frequency defined in advance
    - ❖ No external quality control of the medical laboratory
  - c. Reporting, data managed according to a quality system and in compliance with Health 2
  - d. In addition to c), an extra-work e.g.:
    - ❖ In-depth study of the urinary mercury results

Comments:

## 5. MONITORING OF MERCURY IN THE WORKING ENVIRONMENT

a	b	c	d
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reference documents:

- ***HEALTH 2 - Code of Practice: Control of Worker Exposure to Mercury in the Chlor-Alkali Industry***
- ***National regulations***
- ***Council Directive of 12 June 1989 in the introduction of measures to encourage improvements in the safety and health of workers at work (89/391/EEC)***

- a. Insufficient strategy for monitoring exposure to mercury
  - ❖ Little or no measurements in the inhaled air
  - ❖ Data largely area-based rather than personal
- b. Personal exposure monitoring related to mercury
  - ❖ Competence of monitoring personnel not established
  - ❖ Not enough data for proper systematic assessment
  - ❖ Measurement not done with general accepted equipment for the measurement of mercury in air
- c. Method of measurement of mercury in air in compliance with Health 2, results used in the mercury health risk assessment for every job
  - ❖ Documented monitoring methods according to recognised protocols
  - ❖ Evidence of competence of monitoring personnel (please comment)
  - ❖ Conveyed to workers
- d. In addition to c), some extra-work
  - ❖ Plans for continuous improvement

Comments:

## 6. RISK ASSESSMENT

a	b	c	d
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reference documents:

- ***HEALTH 2 - Code of Practice: Control of Worker Exposure to Mercury in the Chlor-Alkali Industry***
- ***National regulations***
- ***Council Directive of 12 June 1989 in the introduction of measures to encourage improvements in the safety and health of workers at work (89/391/EEC)***

- a. Risk assessment not realized or based on insufficient data
  - ❖ No adequate assessment of frequency, duration and level of exposure
  - ❖ Poorly defined priorities of actions regarding risk control
- b. Risk assessment realized, however:
  - ❖ No regular update of the risk assessment
  - ❖ Written priorities of actions not conveyed to workers
  - ❖
- c. Complete risk assessment regularly updated:
  - ❖ Identification of the various risk areas
  - ❖ Identification of the various risk tasks
  - ❖ Identification of vulnerable groups
  - ❖ Responsibilities assigned
- d. In addition to c), some extra-work e.g.:
  - ❖ Plans for continuous improvement

Comments:

## 7. RISK MANAGEMENT

a	b	c	d
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reference documents:

- **HEALTH 2 - Code of Practice: Control of Worker Exposure to Mercury in the Chlor-Alkali Industry**
- **National regulations**
- **Council Directive of 12 June 1989 in the introduction of measures to encourage improvements in the safety and health of workers at work (89/391/EEC)**

- a. No written procedure for control of mercury exposure
  - ❖ No reference to occupational exposure limit
  - ❖ Little data on compliance with the Biological Exposure Index (BEI)- see Health 2
  - ❖ Incomplete identification of jobs, tasks and similar exposure groups (SEG's)
- b. Partial application of principles of mercury exposure control with written procedures
  - ❖ Some evidence of compliance with BEI and/or OEL
  - ❖ Compliance with BEI and/or OEL largely relying on Personal Protective Equipment (PPE)
  - ❖ Complete identification of jobs, tasks, exposure groups
- c. Written strategy with recommendations from health risk assessments implemented
  - ❖ Control of mercury exposure through biological monitoring and personal air sampling
  - ❖ Some dependence on PPE
  - ❖ Evidence of compliance with BEI
- d. In addition to c), some extra-work e.g.:
  - ❖ Compliance without PPE

Comments:

## 8. HEALTH SURVEILLANCE

a	b	c	d
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reference documents:

- **HEALTH 2 - Code of Practice: Control of Worker Exposure to Mercury in the Chlor-Alkali Industry**
- **National regulations**
  - a. Health surveillance driven by general principles and compliance only with requirements of legislation for the chemical products in general
  - b. Health surveillance driven by principles specific for mercury but not in accordance with Health 2
    - ❖ No formal system to review procedures/outcomes
  - c. Health surveillance in full accordance with Health 2
    - ❖ Written and reviewed protocols for mercury surveillance
    - ❖ Outcomes reviewed for training management and workforce
  - d. In addition to c), some extra work e.g.:
    - ❖ A formal system to review links between health and exposure data

Comments:

## 9. HEALTH-RELATED ACTIONS IN CASE OF OVER-EXPOSURE

a	b	c	d
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reference documents:

➤ ***HEALTH 2 - Code of Practice: Control of Worker Exposure to Mercury in the Chlor-Alkali Industry***

- a. Minimal actions taken regarding exposure levels
- b. Withdrawal of the worker from exposure with later control of the results
- c. Full compliance to Health 2
  - ❖ Investigation of causes of high exposure level
  - ❖ Medical evaluation of the over-exposed person
- d. In addition to c) some extra-work

Comments:

## 10. INFORMATION AND TRAINING FOR EMPLOYEES

a	b	c	d
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reference documents:

- **HEALTH 2 - Code of Practice: Control of Worker Exposure to Mercury in the Chlor-Alkali Industry**
- **National regulations**
  - a. Informal procedures and no retrievable material for providing information and training
  - b. Written procedures exist but not all corresponding records are available
  - c. Full system in place:
    - ❖ Occupational physician involved in the information and training of the employees regarding mercury hazard
    - ❖ Information regarding the mercury risk on all jobs/tasks critically evaluated
    - ❖ Instructions regarding the mercury risk included in standard operating procedures
    - ❖ Scheduled training programme implemented
    - ❖ All records accessible
  - d. In addition to c), some extra-work e.g.:
    - ❖ Systems, material and competence subject to formal review to ensure continuous improvement

Comments:

## 11. RECORDS

a	b	c	d
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reference documents:

➤ ***National regulations***

- a. Minimal system in place and records filed related to (over)exposure and medical data
- b. System with data saved, securely stored and readily accessible for authorised persons but not used for improvement of the work process
- c. Systematic use of the data .
- d. In addition to c), some extra-work e.g.:
  - ❖ Process of continuous improvement
  - ❖ Use of system for comparing exposure and health effects

Comments:



## 12. INTERNAL AUDIT

a	b	c	d
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reference document:

- a. No previous audit
- b. Occasional internal audit according to a written document
- c. Regular audit according to a written document
- d. In addition to c, some extra work e.g.:
  - ❖ Plans for continuous improvement
  - ❖ External benchmarking
  - ❖ Recognized audit certification from international organisation (e.g. ISO, etc.)

Comments:

## REFERENCES

***HEALTH 2 - Code of Practice: Control of Worker Exposure to Mercury in the Chlor-Alkali Industry***

***ENV. PROT. 11 - Code of Practice: Mercury Housekeeping***

National regulations

Council Directive of 12 June 1989 in the introduction of measures to encourage improvements in the safety and health of workers at work (89/391/EEC)

Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work

Company documents in native language in accordance with Health 2

Industrial consumers of chlorine, engineering and equipment supply companies worldwide and chlorine producers outside Europe may establish a permanent relationship with Euro Chlor by becoming Associate Members or Technical Correspondents.

Details of membership categories and fees are available from:

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