EHS Committee

Voluntary implementation of appropriate Risk Reduction measures

Proposed Agenda

- Introduction, presentation
- ICdA decisions concerning the creation of an EHS Committee
- Summary of the Risk reduction strategy process for Cd & Cd0
- Practical implementation of the ICdA guidance document
- Prioritisation of themes to be developed for improving the implementation the ICdA guidance document
- Creation of a more User-friendly ICdA Guidance document
- Study on Cadmium exposure Data trustee to be presented to Board by end of February 2009
- Any other business
- Date of next EHS meeting

Statement of Compliance

- The purpose of the meeting is to address, under the applicable confidentiality rules, issues concerning cadmium and cadmium compounds producers and users and more particularly the ICdA program on voluntary risk reduction measures to protect workers potentially exposed to cadmium.
- The minutes kept at the meeting will have to reflect all significant matters discussed during the meeting.
- No discussions will be held, formally or informally, during specified meeting times or otherwise, involving, directly or indirectly, express or implicit agreements or understandings related to: (a) any company's price; (b) any company's terms or conditions of sale; (c) any company's production or sales levels; (d) any company's wages or salaries; (e) the division or allocation of customers or geographic markets; or (f) customer or suppliers boycotts; or (g) any disclosure of information which may affect applicable rules on Competition Law.
- The International Cadmium Association, as a group will make no recommendations of any kind and will not try to reach any agreements or understandings with respect to an individual company's prices, terms or conditions of sale, production or sales levels, wages, salaries, customers or suppliers.

Priorities for coming years as outlined by an Ad-hoc Board subcommittee (11/09/08)

- **ICdA needs to be more proactive than today** in ensuring that regulations on Cd are being generated on the basis of good science.
- **ICdA should be the facilitator and play a coordinating role** in implementing the Guidance document, since long a cornerstone of ICdA policy:
  - Start an effective H&S Ctee (first meeting in Q4 2008) to cover why, how, do's and don'ts
  - Generate a more user-friendly Guidance
- **ICdA should be active in evaluating monitoring/communication tool**: i.e. bio-monitoring and Data Trustee
  - Assess what and how we could establish a Data Trustee
  - Exact goal, content, by whom (part of H&S Ctee 1 and 2)
- **ICdA should start communicating actively with SCOEL and national authorities** on industry actions to protect workers:
  - Define content and generate message
  - MS delivery through adequate ICdA member (+ ICdA coordinator?)
  - EU (Scoel + COM) delivery through ICdA with board assistance
- **ICdA should coordinate communication** to REACH National Competent Authorities and ECHA about "no need to list Cd + compounds on Annex XIV":
  - Define content and generate message (need to stress worker protection AND point source releases)
  - Evaluate current situation relative to such point source releases (default values still applicable?)
  - MS delivery through adequate ICdA member (+ ICdA coordinator?)
  - EU delivery (ECHA + COM) through ICdA with board assistance

Endorsement by the GA of those prioritized activities

- **The General Assembly of ICdA Members, meeting on October 16, 2008:**
  - **Agreed to support the implementation of the prioritized activities summarized in the presentation made by the Ad-Hoc Board Sub-Committee to the ICdA members**
  - **Approved the inclusion of these elements in the ICdA 2009 Work Programme and Business plan 2009-2010-2011**

ICdA – H&S Ctee
November 25th 2008, Brussels

The Cd/CdO Risk Reduction Strategy

Threats and industry response

Rapporteur of RA-RRS: Belgium
Under Regulation 793/93

What is a Risk Assessment?

- What:
  - It is a scientific process aiming at reviewing all different uses of a substance, with the purpose of identifying if there are occurences of Risk
- Main steps:
  - Identification of the effects
  - Identification of the threshold for each effect
  - Identification of exposure pathways
    - ✓ To the environment
    - ✓ To humans
  - And assessment of whether the exposure exceeds the thresholds identified in the second step
- Possible outcomes (for each end point)
  - (i): no risk
  - (ii): further data needed
  - (iii): risk

What is the legal context?

- Under the previous chemicals regulatory environment (pre-REACH era!)
- All substances placed on the market prior to 09/1981 (those that are eligible to the phase-in status if preregistration takes place before Nov 30th, 2008)
  - « grand-fathered in »
  - no data required for further marketing
- Except for substance placed on a list of « priority substances »
- Cd/CdO on third priority list, RA had to be conducted by a MS on behalf of COM
- Belgium was in charge

Main HH findings for Cd/CdO

- Conclusion (iii) Kidney: Critical Organ

> or concurrent renal disease. As workers exposed to Cd may also suffer from such disease during or after their occupational career, it appears prudent to recommend that they should be offered the same degree of health protection than individuals from the general population. For this reason, a single LOAEL of 2 µg/g creatinine will be used in Section 4.1.3 (Risk characterisation), both for oral and inhalation exposures. The interpretation of this LOAEL and

- Conclusion (iii) Bone

> In workers exposed to cadmium compounds (not specifically Cd metal or CdO), clinical bone disease has been described but the number of cases is limited. One cross-sectional study reported results compatible with a role of cadmium in the genesis of osteoporosis (Järup et al., 1998) but no critical Cd dose could be derived. By default, the value extracted from studies performed in environmentally exposed populations (3 nmol Cd/mol creatinine) will be taken forward in the Risk Characterisation section.

Risk Reduction Strategy

- Last section of a RA, same rapporteur: Belgium
- Goal:
  - Identify strategies to reduce/eliminate risk
- Process:
  - Assess wether existing regulation is sufficient to do the job
  - If necessary, propose new regulatory tools
- Prioritization:
  - Effectiveness
  - Practicality
  - Economic impact
  - Monitorability

Response from Industry

- Development of the ICdA Guidance Document

Conclusions of the RRS

- Communication:

STRATEGY FOR LIMITING RISKS

For WORKERS

The legislation for workers' protection currently in force at Community level, particularly Council Directive 2004/37/EC (1) (Carcinogens — Mutagens Directive), is generally considered to provide an adequate framework to limit the risks of the substance to the extent needed and shall apply.

Within this framework it is recommended:

— to set at community level occupational exposure limit values and a biological limit value for cadmium according to Directive 98/24/EC (2) or Directive 2004/37/EC as appropriate.

- Recommendation:

Risk reduction measures for workers (1) and the environment (2, 3 and 4)

1. That employers using cadmium for the uses identified as a concern in the risk assessment should take note of any sector specific guidance developed at national level based on the practical non-binding guidance, as provided for in Article 12(2) of Council Directive 98/24/EC (1).

What is the threat?

- Threat is:
  - COM sets OELs and BLVs based on thresholds set in RA:
  - i.e. [Cd-U] at 2 µg Cd/g creatinine
- Industry as a whole at risk
  - Sizeable fraction of exposed work force in excess of this threshold
  - Can we ensure new work force can be kept below this level over 40 years?
  - Legal risk stemming from fraction of work force already above such level!

Strategy

- Industry must show a responsible response:
  - Industry is fully aware of the conclusions of the RA on HH
  - Industry is taking the necessary steps to improve its scorecard
- ICdA Policy:
  - GA resolution: unanimous vote on October 16th, 2008
  - EU sites of ICdA members will implement the ICdA Guidance Document
  - Provided it does not conflict with national legislation nor relaxes existing practice
- Mid term goal:
  - Have systems in place so that employers can ensure their workforce is kept below [Cd-u] < 5

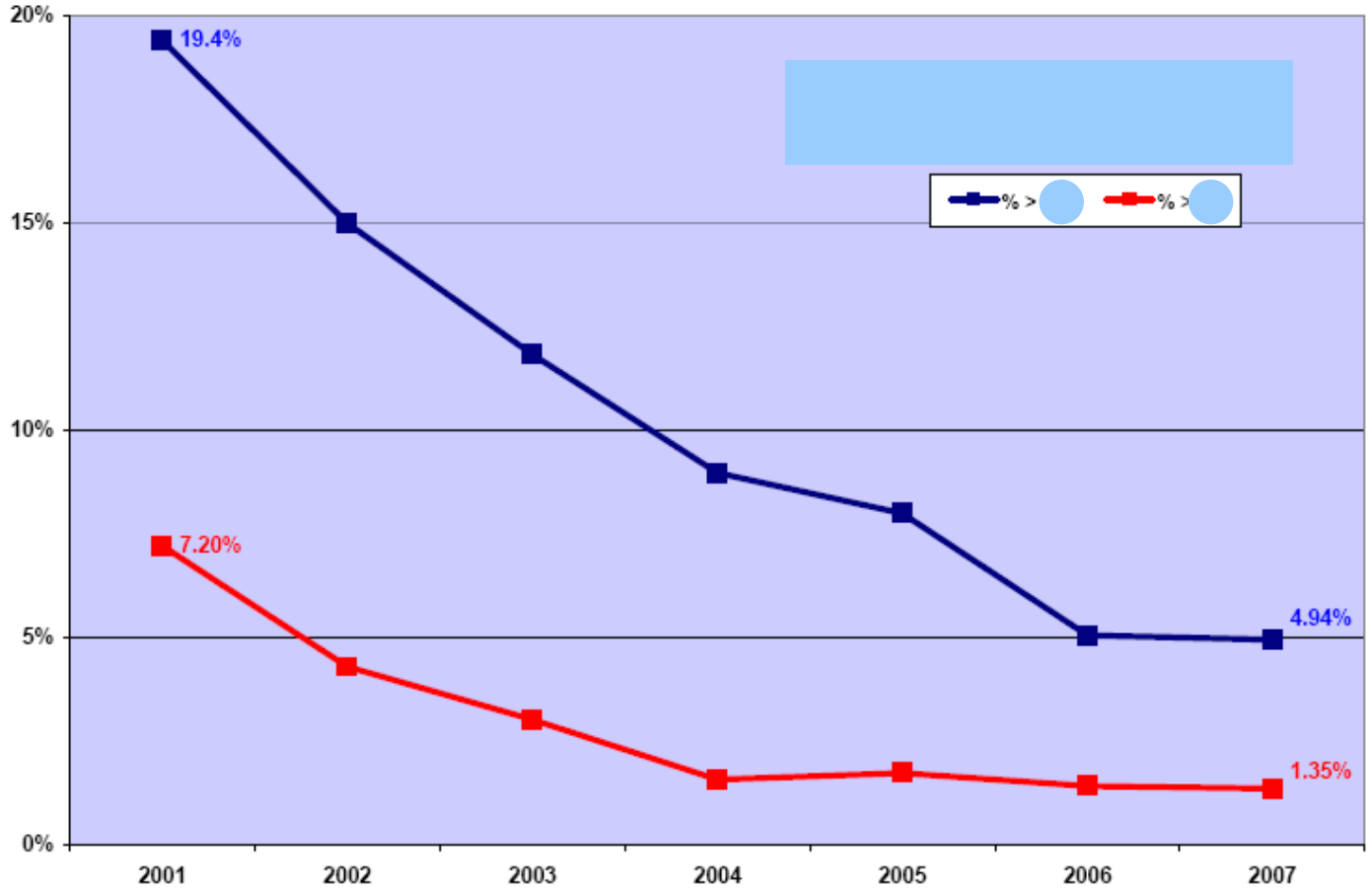
Why a target of 5µg Cd/g creatinine?

- Strong cooperation with the Cd/CdO Reach consortium
- As part of the Registration file, studies will be commissionned which may challenge some of the RA conclusions
- Hope is that scientific proof can be generated showing that threshold of 5 is low enough to protect from kidney/bone risk
- But…

Tactics

- 5 other GA resolutions of October 16th, 2008:
- ICdA to set up a H&S Committee to assist members in implementing the ICdA Guidance
- A more user friendly format is to be created
- A study is commissionned by Board to aSub-Ctee to assess whether there would be a benefit in setting up an occupational exposure data trustee (see next slide)
  - For benchmarking purposes
  - For communication purposes
- Industry efforts will be presented to COM and National Authorities (should the need arise)
  - France
  - Others?

Occupational Exposure Data Trustee



ICdA – H&S Ctee
November 25th 2008, Brussels

ICdA Guidance Document stucture

2006 issue

Response from Industry

- Update of the 1995 ICdA Guidance Document

What is in the Guidance document?

- Generally: high level overview of recommended « to do's »
  - Must be broken down further in separate action items for practical implementation
- Exception: the medical surveillance programme
  - Is based on a comprehensive health surveillance programme already in place in the EU
  - The Swedish programme, mandatory in Sweden

Structure of Guidance Document

- Part I: background and Literature review
- Part II: management of the cadmium risk in chronic occupational exposure
  - Establishment of a clean working environment
  - Indivividual protection
  - Information – training of the exposed worker and their staffand line management
  - Medical supervision adapted to the Cd risk

Establishement of a clean working environment

- Covers:
  - Ventilation – suction
  - Processing and storing guidelines
  - Cleaning techniques overview
  - Automation
  - Filtration residue control

Individual protection

- Covers:
  - Respiratory protection
  - Individual hygiene at the work place
  - Premises protection
  - Information and training

Medical surveillance Programme

- Based on the Swedish mandatory programme:
  - Implemented within Saft AB (ex Ni-Fe) for many years
  - Proven to give good results
  - Since Swedish, cannot be criticized too strongly by the Swedish representative
  - Regulation not under the Ministry of Environment, but under the responsibility of Agency of Workers Protection
  - Needs joint review from employer and employee unions for update (last update in 2005).

Content of the day

- Pick and choose from the three sections what suits your needs:
  - Clean working environment
  - Individual protection, information, training, hygiene
  - Medical supervision (yearly H&S Ctee with medical doctors yearly)
- Introduction of Bernard Pitié

CADMIUM
RISK REDUCTION STRATEGY

THE MAIN THEMES
AND THE TOOLBOX

ICDA EHS Committee

25 November 2008

Bernard Pitié

Mains themes and toolbox

- Contents of the following presentation

  - Introduction
  - Presentation of the main themes and of the toolbox
  - Prioritisation of the main themes
  - Expected output of the work on main themes
    - ✓ Technical sheets describing solutions to reduce cadmium risk
  - Which organisation for developing the main themes?
    - ✓ Presentation of each theme by some members (2, 3 ?), followed by discussions in order to reach a consensus
    - ✓ Meeting on sites which have implemented efficient solutions
    - ✓ Writing of technical sheets

Introduction

- To reach the commitments of the risk reduction strategy (RRS) it would be useful to propose efficient tools to ICdA' members

- Our main objective is to give to each member the possibility of choosing tools according to his specificities:
  - Business (batteries, pigments, etc.)
  - National or local regulations
  - Organisation of workshops, machines, equipments
  - Relationship with medical doctors, unions
  - Data on Bio-indicators (BI), data on cadmium in air (Cd-A)
  - Etc.

- The expected output of the work of this committee could be technical sheets, organised by themes, written and validated by the members.

The main themes

- The risk reduction strategy on the work premises is based on 3 main types of action
  - Establishment and insurance of a clean working environment
  - Implementation of robust and sustainable hygiene procedures
  - Medical supervision adapted to cadmium risk
- Questions about the different themes and sub-themes developed in the next slide ?
  - Are they pertinent and consistent ?
    - ✓ Cf. toolbox for more details
  - Are some important issues missing ?
  - Is the grouping pertinent ?
- The toolbox
  - Non exhaustive list of questions and possible solutions
  - Useful for answering the previous questions about themes and sub-themes

The main themes

1. **Establishment and insurance of a clean working environment**
    1. Engineering controls
    2. Cleaning
    3. Measuring air quality

2. **Implementation of robust and sustainable hygiene procedures**
    1. Creating a culture of prevention and occupational hygiene
    2. Information on results
    3. Personal hygiene
        1. Simple hygiene rules
        2. Hygiene rules on smoking, drinking, eating
        3. Hygiene rules on clothes and washing
    4. Respiratory protective equipments (RPE)

3. **Medical supervision adapted to cadmium risk**
    1. Presentation of biological indicators (BI) related to cadmium risk, sampling procedures, precision of analyses, recordkeeping (air, BI, training)
    2. Explanation of the indicative diagram of cadmium risk management in chronic moderate occupational exposure (table 1)
    3. Detailed procedures for implementing the cadmium risk management

Prioritization of the themes

- The priority should be a priority of action, for creating technical sheets
  - Scale of priority : from 1 (low priority) to 3 (high priority)

- Several possibilities for prioritization :
  1. Following the numbering of themes
  2. Choosing the themes which are very important for everybody, even if the tools have always been implemented in the plants
  3. Choosing some specific themes which are interesting because they have not yet been fully analysed or implemented

- These possibilities are not independent of the creation of a more-friendly guidance document

Prioritization

MAIN THEMES	PRIORITY
1. Establishment and insurance of a clean working environment	
1.1. Engineering controls	
1.2. Cleaning	
1.3. Measuring air quality	
2. Implementation of robust and sustainable hygiene procedures	
2.1. Creating a culture of prevention and occupational hygiene	
2.2. Information on results	
2.3. Personal hygiene	
2.3.1. Simple hygiene rules	
2.3.2. Hygiene rules on smoking, drinking, eating	
2.3.3. Hygiene rules on clothes and washing	
2.4. Respiratory protective equipments (RPE)	
3. Medical supervision adapted to cadmium risk	
3.1. Presentation of biological indicators (BI) related to cadmium risk, sampling procedures, precision of analyses, recordkeeping (air, BI, training)	
3.2. Explanation of the indicative diagram of cadmium risk management in chronic moderate occupational exposure (table 1 of TG)	
3.3. Detailed procedures for implementing the cadmium risk management	

Decisions of the EHS committee on the prioritization

MAIN THEMES	PRIORITY
1. Establishment and insurance of a clean working environment	
1.1. Engineering controls	1
1.2. Cleaning	2
1.3. Measuring air quality	3
2. Implementation of robust and sustainable hygiene procedures	
2.1. Creating a culture of prevention and occupational hygiene	3
2.2. Information on results (to be included in 2.1)	3
2.3. Personal hygiene	3
2.3.1. Simple hygiene rules	3
2.3.2. Hygiene rules on smoking, drinking, eating	3
2.3.3. Hygiene rules on clothes and washing	3
2.4. Respiratory protective equipments (RPE)	2
3. Medical supervision adapted to cadmium risk	
3.1. Presentation of biological indicators (BI) related to cadmium risk, sampling procedures, precision of analyses, recordkeeping (air, BI, training)	3
3.2. Explanation of the indicative diagram of cadmium risk management in chronic moderate occupational exposure (table 1 of TG)	2
3.3. Detailed procedures for implementing the cadmium risk management	2

Expected output : technical sheets

- Is there a need for a simple standard format for technical sheets ?

- Other questions to keep in mind (ICdA):
  - Property and copyright ?
  - Liability ?
  - Confidentiality (data, drawing, technical sheets...)
  - Other issues...

Which organisation for working on the themes ?

- Different kinds of organisation
  - Small working groups preparing technical sheets and reporting their works to EHS committee for final validation
  - Working during EHS-committee meeting with presentations from some members, followed by discussion in order to reach an agreement during the meeting
    - ✓ Writing of technical sheets ?
  - Meeting on sites which have implemented efficient solutions
    - ✓ Writing of technical sheets ?
- Schedule
- Discussion and decisions

INTERNATIONAL CADMIUM ASSOCIATION
EHS COMMITTEE
25 November 2008

The risk reduction strategy on the work premises is based on 3 types of action:

1. Establishment and insurance of a clean working environment
2. Implementation of robust and sustainable hygiene procedures
3. Medical supervision adapted to cadmium risk

RISK REDUCTION STRATEGY
MAIN THEMES FOR PRIORITIZATION

1. Establishment and insurance of a clean working environment
1.1. Engineering controls
1.2. Cleaning
1.3. Measuring air quality

2. Implementation of robust and sustainable hygiene procedures
2.1. Creating a culture of prevention and occupational hygiene
2.2. Information on results
2.3. Personal hygiene
2.3.1. Simple hygiene rules
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3.1. Presentation of biological indicators (BI) related to cadmium risk, sampling procedures, precision of analyses, recordkeeping (air, BI, training)
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A TOOLBOX
FOR RISK REDUCTION STRATEGY

The toolbox is a non-exhaustive list of questions and possible solutions which are already used in cadmium industry or in similar industries and which could be chosen and discussed for improvement in order to establish the technical sheets associated to the main themes.

1. Establishment and insurance of a clean working environment

1.1. Engineering controls

1.1.1. Conceive plants and install machines and devices limiting Cd emissions and Cd deposition on surfaces

1.1.2. Conceive processing and storing in circuits as closed as possible

1.1.3. Introduce automation and computer control to minimise time spent in production environment

1.1.4. Enclose the sources of Cd-containing dust or Cd-fume and equip with local ventilation

1.1.5. Address dirty spots by elimination or improved control

1.1.6. Ventilation, suction, movable suction devices

1.1.7. Install changing rooms with clean room and dirty room *(for which kind of workshops, with high exposure ?)*

1.2. Cleaning

1.2.1. Ensure that general shop cleanliness is maintained by frequent washing, vacuuming

1.2.2. Cleaning of surfaces, floors, superstructures, beams, ceilings, walls, equipments

1.2.3. Is it interesting to keep floors of particularly highly exposed working areas wet or equipped with grid over water traps?

1.2.4. Specific cleaning during intervention for preventive maintenance or in case of damage

1.2.5. Control of product resulting from the purification system and the waste

1.3. Measuring air quality

1.3.1. Mandatory limits and targets limits for Cd-Air

1.3.2. Measurement of inhalable and respirable dust at fixed locations and by personal air sampling, frequency. (OSHA definitions : for inhalable dust, the aerodynamic diameter is around 10 µm, for respirable dust it is around 2 µm)

1.3.3. Cadmium measurement (total concentration, speciation, laboratories…)

2. Implementation of robust and sustainable hygiene procedures

2.1. Creating a culture of prevention and occupational hygiene

2.1.1. Define and communicate a clear policy for controlling occupational exposure to cadmium

2.1.2. Ensure managers set the example in terms of personal protection and hygiene

2.1.3. Involve occupational physicians in making workers take control of their own bio-indicators
2.1.4. Involve trade unions and/or shop stewards
2.1.5. Is it useful and possible to make low bio-indicators a condition of employment?
2.1.6. Involve managers when worker's bio-indicators exceed action levels
2.1.7. Provide detailed training for new personnel on the risks of cadmium exposure and the procedures for protection
2.1.8. Provide instruction on specific cadmium exposure risks for workers undertaking new tasks
2.1.9. Provide regular refresher courses for all employees on the risks of cadmium exposure and the procedures for protection
2.1.10. Seek worker behavioural changes
2.1.11. Consider giving individual cash bonuses or other non-financial incentives upon the achievement of certain target cadmium levels…

2.2. Information on results

2.2.1. Importance of publicising bio-indicator results to workers via notices and briefings to ensure the topic remains a key priority

2.3. Personal hygiene

2.3.1. Simple hygiene rules

2.3.1.1. Provide medical gloves and/or barrier creams
2.3.1.2. Ensure workers follow simple hygiene rules *(e.g. do not bite nails and keep them cut short, avoid touching or scratching face with dirty hands or gloves)*
2.3.1.3. Ensure workers do not wipe away sweat with hands or arms, but provide disposable perspiration towels
2.3.1.4. Ensure workers use disposable tissues rather than a handkerchief.
2.3.1.5. Consider using revelators to check effectiveness of hand cleaning (if they exist, cf.. lead)

2.3.2. Hygiene rules on smoking, drinking, eating

2.3.2.1. Define a smoking policy, (ban smoking in working clothes, ban smoking...). If appropriate, provide smoking areas duly equipped
2.3.2.2. Prohibit drinking and eating in production areas
2.3.2.3. Setting up of drinking areas duly equipped
2.3.2.4. Prevent access to eating and non-production areas in working clothes
2.3.2.5. Set hygiene rules to be applied before entering eating areas

2.3.3. Hygiene rules on clothes and washing

2.3.3.1. Define the personal hygiene rules to be applied at the end of a shift *(for example, ensure workers pass through a room containing washbasins for the cleaning of hands, followed by a 'dirty' room for the removal of working clothes, then through showers into a 'clean' room for changing into personal clothing, ensure workers handle dirty working clothes with care)*
2.3.3.2. Provide sufficient working clothes to enable daily change into clean clothes, and ensure that all workers use clean clothes every day

2.3.3.3. Make showering obligatory at the end of a shift, with the time taken paid by the company *(provide towels and soap)*

2.3.3.4. Allow no personal belongings to be taken into production areas, and allow no items that have been used in production areas to be taken home

2.3.3.5. If necessary define a special treatment for clothes with before washing (treat the used water).

2.4. Respiratory protective equipment (RPE)

2.4.1. If necessary define a two or three step procedure for using masks

2.4.2. Make the wearing of respiratory protective equipment mandatory in all exposed areas

2.4.3. Use effective masks accompanied by a compliance policy :

2.4.4. Ensure proper shaving

2.4.5. Ensure workers do not remove RPE in production areas in order to communicate

2.4.6. Employ formal mask cleaning and filter changing strategies

3. Medical supervision adapted to cadmium risk

3.1. Presentation of biological indicators (BI) related to cadmium risk, sampling procedures, precision of analyses, recordkeeping (air, BI, training)

3.2. Explanation of the indicative diagram of cadmium risk management in chronic moderate occupational exposure (table 1)

3.3. Detailed procedures for implementing the cadmium risk management

3.3.1. Objectives

3.3.2. Initial training and continuous training

3.3.3. Guides for personal hygiene, personal equipment…

3.3.4. Transmission of information from medical doctors to managers

3.3.5. Pre-employment examination (clinical, biological)

3.3.6. Periodic examination for permanent workers (short or long exposure to cadmium)

3.3.7. Temporary workers examination

3.3.8. Frequencies for biological indicators

3.3.9. Etc.