Annex 5.1

Occupational Study: Questionnaire for the exposure to hexavalent chromium and other chemicals

WP 7

Task 7.3

D7.6

**Version 2.0**

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# Authors and Acknowledgement

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**QUESTIONNAIRE FOR WORKPLACES (self-administered)**

We would be grateful if you can complete this short questionnaire concerning your companies’ activities relating to hexavalent chromium and other chemicals. Please return it directly to the researcher once completed.

**Company and Occupational Health care information**

Name and position of the company representative:

Name of the Company/Organisation:

Name of the department:

Site address:

Country:

Industrial sector:

NACE Rev.2 code (to be filled by researcher):

Description of the workplace (nature of the business, what is being manufactured, how the work is organized):

Describe the general training, monitoring, and occupational health and safety practices related to exposure to hazardous chemicals in your company:

Name and address of the Occupational health care:

Contact person and contact details (e-mail, phone number) of the Occupational Health and Safety department:

**Operational conditions**

(Select those that apply from chrome plating, spraying/painting or welding)

|  |  |  |
| --- | --- | --- |
| **Job** | **Take place at your site? (tick if apply)** | **Complete questions in Sections** |
| Chrome plating |  | 1 and 4 |
| Spraying/painting |  | 2 and 4 |
| Welding |  | 3 and 4 |

**1. Chrome plating in baths**

1. Used quantities of hexavalent chromium in % (or g/l) in the baths? (please tick box/specify)

□ ≤5; □ >5-10; □ >10-50% or …..…… grams/litre (g/l)

1. The frequency of hexavalent chromium plating operations? (categories: daily, days/week or days/month)
2. Does the work include also nickel plating? (please circle) Yes / No / Don’t know
3. If nickel is used what is the used quantity in % (or g/l) in the baths?

…..……% or …..…… grams/litre (g/l)

1. The frequency of nickel plating operations? (categories: daily, days/week or days/month)
2. Does the work include also coating with trivalent chromium? (please circle) Yes / No / Don’t know
3. If trivalent chromium is used what is the used quantity in % (or g/l) in the baths?

…..……% or …..…… grams/litre (g/l)

1. The frequency of trivalent chromium plating operations? (categories: daily, days/week or days/month)
2. Does the work include also coating with cadmium? (please circle) Yes / No / Don’t know
3. If cadmium is used, what is the used quantity in % (or g/l) in the baths?

…..……% or …..…… grams/litre (g/l)

1. The frequency of cadmium plating operations? (categories: daily, days/week or days/month)
2. Size of the parts treated? (please describe)
3. How many employees work on these activities?

**Risk management measures for chrome plating** (please circle)

Enclosure of the bath Total Partial No

Local exhaust ventilation (LEV) present at bath Yes No

Use of bubble dispersers on the liquid surface Yes No

The use of mist suppressants Yes No

* + - PFAS (Perfluoroalkylated substances) suppressant use

Yes (please specify) No Don’t know

* + - Other suppressant use

Yes (please specify) No

**2. Surface treatment by spraying or painting**

1. Used quantities of hexavalent chromium in % the paint? (please tick box)

□ ≤0.01; □ >0.01-0.1; □ >0.1-0.5; □ >0.5-1; □ >1-5; □ >5-10; □ >10-15; □ >15 %

1. Average quantity of paint used per month (litres or gallons)? ……….. litres / ……….. gallons
2. Frequency of spraying or painting and machining operations? (categories: daily, weekly, monthly, other)
3. Size of the parts sprayed or painted? (please describe)
4. How many employees work on these activities?

**3. Welding**

1. The frequency of welding operations? (categories: daily, weekly, monthly, other)
2. Size of the parts welded? (please describe)
3. How many employees work on these activities?

|  |  |
| --- | --- |
| **What welding method is used?** (please tick box) | * MMA (manual metal arc) * MAG (metal active gas) * MIG (metal inert gas) * TIG (tungsten inert gas) * SAW (submerged arc welding) * Plasma - plasma gas * Flux-cored welding * Other (please specify) ………………………………………………….. * ……………………………………………………………………………………… |

**4. Previous measurements**

Have any of the following types of measurements been collected from your workers at the site?

|  |  |  |
| --- | --- | --- |
| **Measurements** | **Tick all that apply** | **Years collected** |
| Air samples |  |  |
| Dermal exposure measurements |  |  |
| Blood samples from workers |  |  |
| Urine samples from workers |  |  |
| Other (please specify) |  |  |
|  |  |  |

Would you be willing to allow the researchers to have access to these results (in a confidential manner)? (Please circle) Yes No

If yes, contact person and contact details (e-mail, phone number):

**Thank you for filling the questionnaire!**

**Please return it directly to the researcher once completed.**

**POST-SHIFT QUESTIONNAIRE FOR WORKERS (interviewed by researcher)**

**Background information about worker**

|  |  |
| --- | --- |
| **Worker ID** |  |
| **Urine sample** | **Date collected: Time:**  **Sample code:** |
| **EBC sample** | **Date collected: Time:**  **Sample code:** |
| **Blood sample** | **Date collected: Time:**  **Sample code:** |
| **Air sample (personal)** | **Date collected: Sample code:** |
| **Wipe sample(s) (personal)** | **Date collected: Sample code(s):** |
| **Company name and name of department** |  |
| **Worker name and position** |  |
| **Sex** (please circle) | **Male Female** |
| **Date of birth (dd/mm/yyyy)** |  |

*Please separate this sheet from the Questionnaire*

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**POST-SHIFT QUESTIONNAIRE FOR WORKERS (continues; interviewed by researcher)**

|  |  |  |
| --- | --- | --- |
| **Worker ID** |  | |
| **What is your length (cm or feet/inches)** | ……………. **cm /** …………. **ft** …………. **inches** | |
| **What is your current weight (kg or stones/lb)** | ……………. **kg /** …………. **St** …………. **lb** | |
| **Occupation** | **Free description:** | **ISCO08 code** |
| **Is the work done predominantly** (please circle) | **Inside Outside** | |
| **Duration of work shifts (hours)**  **and typical overtime per week (hours)** |  | |
| **Type of work shifts** (please tick box) | * **Fixed day** * **Fixed night** * **Rotating day/back** * **Rotating day/back/night** * **Other** (please specify)…………………………………………………… | |
| **Home address** |  | |
| **Home location and related characteristics** (please circle) | **Urban Rural** | |
| **Are there industrial plants, incinerators or landfill sites in the surroundings of your house?** (please circle) | **Yes No**  **If yes, approximately how far away from your house is the closest one (km)?** | |
| **Please describe the vehicular traffic density in the surroundings of your home address** (please circle) | **Quiet street (low density)**  **Residential road (medium density)**  **Main Road (heavy density)** | |
| **Cigarette smoking** (please circle) | **Yes No Former smoker** | |
| **Cigarette smoking** (continues) | **Approximate number of cigarettes/day**  **Number of years you have smoked**  **If former smoker, how many years ago did you stop smoking?**  **Approximate number of cigarettes/day you smoked**  **Number of years you smoked** | |
| **Worker ID** |  | |
| **Do you smoke electronic cigarettes?** (please circle) | **Yes No Former e-cigarette** | |
| **E-cigarettes** (continues) | **Approximate number of e-cigarettes/day**  **Number of years you have smoked e-cigarettes**  **If former e-cigarettes smoker, how many year ago did you stop smoking?**  **Approximate number of e-cigarettes/day you smoked**  **Number of years you smoked e-cigarettes** | |
| **Do you use any other tobacco products?** (please circle) | **Yes No Former user**  **If yes or former user, please specify** | |
| **Other tobacco products** (continues) | **Approximate number of tobacco product/day**  **Number of years you have used**  **If former user, how many years ago did you stop?**  **Approximate number of product/day you used**  **Number of years used** | |
| **Do you have implants which may contain metals, e.g. pins, rods, screws, plates, hip, knee joints etc?** (please circle) | **Yes No Don’t know**  **If yes, how long** **is it since they were implanted?**  **Do you know what type of implants?** (please specify) | |
| **Do you have dental fillings?** (please circle) | **Yes No**  **If yes, do you know what material they are made?** (please specify) | |
| **During the past 3 months, have you had a medical x-ray or Computerised Axial Tomography (CAT) scan?** (please circle) | **Yes No** | |
| **Worker ID** |  | |
| **Have you previously, or are you currently, being treated for cancer?** (please circle) | **Yes No** | |
| **Alcohol consumption** | **Yes No**  **How often do you typicially drink alcohol?** (please circle)  **daily weekly monthly** | |
| **Alcohol consumption** (continues) | **On average, how many days in a month do you have at least one alcoholic beverage?**  **On a typical day that you drink alcohol, how many drinks do you usually have?** | |
| **Consumption of other beverages** (please circle) | **Coffee Tea Energy drinks**  **On average, how many times in a typical day?**  **Coffee** ………. **Tea** ………. **Energy drinks** ………. | |
| **Dietary habits** (please circle) | **Mixed Vegetarian Vegan**  **Other** (please specify) | |
| **Use of food supplements**  (e.g. diet pills) (please circle) | **Yes No**  **If yes, please specify:** | |
| **Recreational activities or hobbies which may cause additional chromate exposure** (e.g. welding, paint spraying, metal works) (please circle) | **Yes No**  **If yes, please specify:** | |

**Occupational history**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Worker ID** |  | | | |  |  |
| **Occupation/job title** | **Did the work involve any of the following activities (tick that apply)** | | | | **Start time (year)** | **Finish time (year)** |
| **metal plating** | **painting or spraying** | **welding** | **other metal works** |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**Job description**

**What job were you doing today?**

|  |  |  |
| --- | --- | --- |
| **Job** | **(Tick if apply)** | **Complete questions in Section** |
| Chrome plating |  | 1 |
| Spraying/painting |  | 2 |
| Welding |  | 3 |

**1. Job description in chrome plating in baths** (please list the type of work tasks you have been involved in today)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Worker ID** |  |  |  |  |  |
|  | **Work task** | **Duration of the task in a work shift** (hours/  minutes) | **Frequency of the task** (x times per week) | **Process**  **type** (manual or automatic) | **PPE\* used** (add the corresponding numbers) | **LEV\*\* used** (yes, no) |
| **1** | **Readjustment of the electrolyte**: decanting and weighing, mixing, re-filling of baths |  |  |  |  |  |
| **2** | **Application in baths**: loading of jigs, chemical pre-treatment, application by dipping or immersion, rinsing and drying, chemical post treatment, cleaning and unloading of jigs, cleaning of equipment, regular maintenance of equipment |  |  |  |  |  |
| **3** | **Infrequent maintenance activities** |  |  |  |  |  |
| **4** | **Drawing of sample and transfer to laboratory** |  |  |  |  |  |
| **5** | **Laboratory analysis** |  |  |  |  |  |
| **6** | **Waste management** |  |  |  |  |  |
| **7** | **Other** (please specify) |  |  |  |  |  |

\*PPE (Personal protective equipment) worn:

1. Powered or air-fed, filtering respirator

2. Reusable half or full face mask respirator (without powered or air-fed respirator)

3. Disposable face mask

4. Other Respiratory Protection Equipment (please specify)

5. Coveralls

6. Reusable Gloves

7. Disposable gloves

8. Other (please specify)

\*\* LEV=local exhaust ventilation

|  |  |
| --- | --- |
| **Has your respiratory protection equipment (mask) been fit tested?** (please circle) | **Yes No**  **If yes, when?** |
| **Have you received information, instruction or training on the use of safe work practices when carrying out this activity?** (please circle) | **Yes No**  **If yes, when?** |
| **Hygiene facilities in the company** (please tick box if apply) | * **Possibility to wash hands** * **Take shower** * **Separate place for working clothes** * **Specific place for the storage of respiratory protective equipment** * **Other** (please specify)……………………………………… * ............................................................................. |
| **Have the work conditions been normal during the work day?** (please circle) | **Yes No**  **If not normal, please specify (e.g. problems with mask or extraction not working):** |

**2. Job description in surface treatment by spraying or painting** (please list the type of work tasks you have been involved in today)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Worker ID** |  |  |  |  |
|  | **Work task** | **Duration of the task in a work shift** (hours/  minutes) | **Frequency of the task** (x times per week) | **PPE\* used** (add the corresponding numbers) | **LEV\*\* used** (yes, no) |
| **1** | **Preparation tasks**: Decanting, Mixing of paints, Re-filling of apparatus |  |  |  |  |
| **2** | **Spraying in spray cabin/spray booth** |  |  |  |  |
| **3** | **Spraying outside of spray booth** |  |  |  |  |
| **4** | **Surface treatment in automatic spray tunnel** |  |  |  |  |
| **5** | **Surface treatment by rolling (small to medium sized areas)** |  |  |  |  |
| **6** | **Surface treatment by brushing or pen stick (small areas/touch-up)** |  |  |  |  |
| **7** | **Drying/self-curing (activities of workers outside one meter distance to the drying part) with no LEV** |  |  |  |  |
| **8** | **Cleaning and maintenance of equipment** |  |  |  |  |
| **9** | **Infrequent maintenance activities** |  |  |  |  |
| **10** | **Machining operations (grinding) on parts containing chromium** |  |  |  |  |
| **11** | **Machining operations (grinding) on parts covered with chromium paint** |  |  |  |  |
| **12** | **Waste management** |  |  |  |  |
| **13** | **Other** (please specify) |  |  |  |  |

\*PPE (Personal protective equipment) worn:

1. Powered or air-fed, filtering respirator

2. Reusable half or full face mask respirator (without powered or air-fed respirator)

3. Disposable face mask

4. Other Respiratory Protection Equipment (please specify)

5. Coveralls

6. Reusable Gloves

7. Disposable gloves

8. Other (please specify)

\*\* LEV=local exhaust ventilation

|  |  |
| --- | --- |
| **Worker ID** |  |
| **Has your respiratory protection equipment (mask) been fit tested?** (please circle) | **Yes No**  **If yes, when?** |
| **Have you received information, instruction or training on the use of safe work practices when carrying out this activity?** (please circle) | **Yes No**  **If yes, when?** |
| **Hygiene facilities in the company** (please tick box if apply) | * **Possibility to wash hands** * **Take shower** * **Separate place for working clothes** * **Specific place for the storage of respiratory protective equipment** * **Other** (please specify)………………………………………………………………… * ........................................................................................................ |
| **Have the work conditions been normal during the work day?** (please circle) | **Yes No**  **If not normal, please specify (e.g. problems with mask or extraction not working):** |

**3. Job description in welding** (please list the type of work tasks you have been involved in today)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Worker ID** |  |  |  |  |
|  | **Work task** | **Duration of the task in a work shift** (hours/  minutes ) | **Frequency of the task** (x times per week) | **PPE\* used**  (add the corresponding numbers)\* | **LEV\*\* used:**  1. Gun fixed extraction  2. Movable welding hood  3. Extracted work bench  4. Extracted welding booth  5. General ventilation  6. Other (please specify) |
| **1** | **Manual welding** |  |  |  |  |
| **2** | **Manual tack-welding** |  |  |  |  |
| **3** | **Robot welding** |  |  |  |  |
| **4** | **Other manual tasks**: Cleaning, Grinding, Cutting etc. |  |  |  |  |
| **5** | **Cleaning and maintenance of equipment** |  |  |  |  |
| **6** | **Waste management** |  |  |  |  |
| **7** | **Other** (please specify) |  |  |  |  |

\*PPE (Personal protective equipment) worn:

1. Welding helmet with powered or air-fed, filtering respirator

2. Welding helmet with half mask re-usable dust respirator

3. Welding helmet with disposable particulate respirator

4. Welding helmet without any respirator

5. Welding helmet with other respiratory protection equipment (please specify)

6. Fire/flame resistant clothing

7. Welding gloves

8. Other gloves

9. Other (please specify)

\*\* LEV=local exhaust ventilation

|  |  |
| --- | --- |
| **Has your respiratory protection equipment (mask) been fit tested?** (please circle) | **Yes No**  **If yes, when?** |
| **Have you received information, instruction or training on the use of safe work practices when carrying out this activity?** (please circle) | **Yes No**  **If yes, when?** |
| **Hygiene facilities in the company** (please tick box if apply) | * **Possibility to wash hands** * **Take shower** * **Separate place for working clothes** * **Specific place for the storage of respiratory protective equipment** * **Other** (please specify)……………………………………… * ............................................................................................... |
| **Have the work conditions been normal during the work day?** (please circle) | **Yes No**  **If not normal, please specify (e.g. problems with mask or extraction not working):** |

**Operational conditions in welding**

|  |  |
| --- | --- |
| **Worker ID** |  |
| **What material was welded?** (please circle) | **Stainless steel Other** (please specify) |
| **Chromium and nickel content of the welded material?** | **Chromium content:** …………….**%**  **Nickel content:** …………….**%**  **Don’t know** (please circle if apply) |
| **What welding method was used?** (please tick box) | * **MMA (manual metal arc)** * **MAG (metal active gas)** * **MIG (metal inert gas)** * **TIG (tungsten inert gas)** * **SAW (submerged arc welding)** * **Plasma - plasma gas** * **Flux-cored welding** * **Other** (please specify)………………………………………………. * …………………………………………………………………………………. |
| **For gas welding, what gas mixture was used?** e.g. 97.5% argon and 2.5% CO2 | **Don’t know** (please circle if apply) |
| **Was the welded material painted?** (please circle)  **Was it a chromium containing paint?** (please circle) | **Yes No Don’t know**  **Yes No Don’t know** |
| **What were the welding voltage and current used?** | **Voltage:** ………………. V  **Current:** ………………. A  **Don’t know** (please circle if apply) |
| **Material and type of the welding rod?** | **Don’t know** (please circle if apply) |
| **Material of the welding flux?** | **Don’t know** (please circle if apply) |
| **Where do you weld?** (please tick box if apply) | * **Outdoor** * **Indoor in a space >1000 m3** * **Indoor in a confined space of …...... m3** * **with no/natural ventilation** * **with forced ventilation (e.g. ship building)** * **with LEV\*** |
| **During welding did you need to position your head in the fume plume?** (please tick box if apply) | * **Almost always, i.e. more than 90% arc time** * **Often, i.e. more than half the arc time** * **Sometimes, i.e. less than half arc time** * **Almost never, i.e. <10% of arc time** |
| **Worker ID** |  |

\* LEV=local exhaust ventilation