

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	<input type="checkbox"/>	1 and 4

Spraying/painting	<input type="checkbox"/>	2 and 4
Welding	<input type="checkbox"/>	3 and 4

1. Chrome plating in baths

- a. 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)
- b. The frequency of hexavalent chromium plating operations? (categories: daily, days/week or days/month)
- c. Does the work include also nickel plating? (please circle) Yes / No / Don't know
- d. If nickel is used what is the used quantity in % (or g/l) in the baths?
 -% or grams/litre (g/l)
- e. The frequency of nickel plating operations? (categories: daily, days/week or days/month)
- f. Does the work include also coating with trivalent chromium? (please circle) Yes / No / Don't know
- g. If trivalent chromium is used what is the used quantity in % (or g/l) in the baths?
 -% or grams/litre (g/l)
- h. The frequency of trivalent chromium plating operations? (categories: daily, days/week or days/month)
- i. Does the work include also coating with cadmium? (please circle) Yes / No / Don't know
- j. If cadmium is used, what is the used quantity in % (or g/l) in the baths?
 -% or grams/litre (g/l)
- k. The frequency of cadmium plating operations? (categories: daily, days/week or days/month)
- l. Size of the parts treated? (please describe)

- m. 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						
<ul style="list-style-type: none"> ▪ PFAS (Perfluoroalkylated substances) suppressant use <table border="0" style="margin-left: 40px;"> <tr> <td>Yes (please specify)</td> <td>No</td> <td>Don't know</td> </tr> </table> ▪ Other suppressant use <table border="0" style="margin-left: 40px;"> <tr> <td>Yes (please specify)</td> <td>No</td> </tr> </table> 	Yes (please specify)	No	Don't know	Yes (please specify)	No			
Yes (please specify)	No	Don't know						
Yes (please specify)	No							

2. Surface treatment by spraying or painting

- a. 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 %
- b. Average quantity of paint used per month (litres or gallons)? litres / gallons
- c. Frequency of spraying or painting and machining operations? (categories: daily, weekly, monthly, other)
- d. Size of the parts sprayed or painted? (please describe)

- e. How many employees work on these activities?

3. Welding

a. The frequency of welding operations? (categories: daily, weekly, monthly, other)

b. Size of the parts welded? (please describe)

c. How many employees work on these activities?

What welding method is used? (please tick box)	<input type="checkbox"/> MMA (manual metal arc) <input type="checkbox"/> MAG (metal active gas) <input type="checkbox"/> MIG (metal inert gas) <input type="checkbox"/> TIG (tungsten inert gas) <input type="checkbox"/> SAW (submerged arc welding) <input type="checkbox"/> Plasma - plasma gas <input type="checkbox"/> Flux-cored welding <input type="checkbox"/> Other (please specify) <input type="checkbox"/>
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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	<input type="checkbox"/>	
Dermal exposure measurements	<input type="checkbox"/>	
Blood samples from workers	<input type="checkbox"/>	
Urine samples from workers	<input type="checkbox"/>	
Other (please specify)	<input type="checkbox"/>	
	<input type="checkbox"/>	

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)	<input type="checkbox"/> Fixed day <input type="checkbox"/> Fixed night <input type="checkbox"/> Rotating day/back <input type="checkbox"/> Rotating day/back/night <input type="checkbox"/> 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

<p>Cigarette smoking (continues)</p>	<p>Approximate number of cigarettes/day</p> <p>Number of years you have smoked</p> <p>If former smoker, how many years ago did you stop smoking?</p> <p>Approximate number of cigarettes/day you smoked</p> <p>Number of years you smoked</p>
<p>Worker ID</p>	
<p>Do you smoke electronic cigarettes? (please circle)</p>	<p>Yes No Former e-cigarette</p>
<p>E-cigarettes (continues)</p>	<p>Approximate number of e-cigarettes/day</p> <p>Number of years you have smoked e-cigarettes</p> <p>If former e-cigarettes smoker, how many year ago did you stop smoking?</p> <p>Approximate number of e-cigarettes/day you smoked</p> <p>Number of years you smoked e-cigarettes</p>
<p>Do you use any other tobacco products? (please circle)</p>	<p>Yes No Former user</p> <p>If yes or former user, please specify</p>
<p>Other tobacco products (continues)</p>	<p>Approximate number of tobacco product/day</p> <p>Number of years you have used</p> <p>If former user, how many years ago did you stop?</p> <p>Approximate number of product/day you used</p> <p>Number of years used</p>
<p>Do you have implants which may contain metals, e.g. pins, rods, screws, plates, hip, knee joints etc? (please circle)</p>	<p>Yes No Don't know</p> <p>If yes, how long is it since they were implanted?</p> <p>Do you know what type of implants? (please specify)</p>
<p>Do you have dental fillings? (please circle)</p>	<p>Yes No</p> <p>If yes, do you know what material they are made? (please specify)</p>

<p>During the past 3 months, have you had a medical x-ray or Computerised Axial Tomography (CAT) scan? (please circle)</p>	<p>Yes No</p>
<p>Worker ID</p>	
<p>Have you previously, or are you currently, being treated for cancer? (please circle)</p>	<p>Yes No</p>
<p>Alcohol consumption</p>	<p>Yes No</p> <p>How often do you typically drink alcohol? (please circle) daily weekly monthly</p>
<p>Alcohol consumption (continues)</p>	<p>On average, how many days in a month do you have at least one alcoholic beverage?</p> <p>On a typical day that you drink alcohol, how many drinks do you usually have?</p>
<p>Consumption of other beverages (please circle)</p>	<p>Coffee Tea Energy drinks</p> <p>On average, how many times in a typical day?</p> <p>Coffee Tea Energy drinks</p>
<p>Dietary habits (please circle)</p>	<p>Mixed Vegetarian Vegan</p> <p>Other (please specify)</p>
<p>Use of food supplements (e.g. diet pills) (please circle)</p>	<p>Yes No</p> <p>If yes, please specify:</p>
<p>Recreational activities or hobbies which may cause additional chromate exposure (e.g. welding, paint spraying, metal works) (please circle)</p>	<p>Yes No</p> <p>If yes, please specify:</p>

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		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Job description

What job were you doing today?

Job	(Tick if apply)	Complete questions in Section
Chrome plating	<input type="checkbox"/>	1
Spraying/painting	<input type="checkbox"/>	2
Welding	<input type="checkbox"/>	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 If yes, when?	No
Have you received information, instruction or training on the use of safe work practices	Yes	No

when carrying out this activity? (please circle)	If yes, when?
Hygiene facilities in the company (please tick box if apply)	<input type="checkbox"/> Possibility to wash hands <input type="checkbox"/> Take shower <input type="checkbox"/> Separate place for working clothes <input type="checkbox"/> Specific place for the storage of respiratory protective equipment <input type="checkbox"/> Other (please specify)..... <input type="checkbox"/>
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)	<input type="checkbox"/> Possibility to wash hands <input type="checkbox"/> Take shower <input type="checkbox"/> Separate place for working clothes <input type="checkbox"/> Specific place for the storage of respiratory protective equipment <input type="checkbox"/> Other (please specify)..... <input type="checkbox"/>
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 If yes, when?	No
Have you received information, instruction or training on the use of safe work practices when carrying out this activity? (please circle)	Yes If yes, when?	No

<p>Hygiene facilities in the company (please tick box if apply)</p>	<input type="checkbox"/> Possibility to wash hands <input type="checkbox"/> Take shower <input type="checkbox"/> Separate place for working clothes <input type="checkbox"/> Specific place for the storage of respiratory protective equipment <input type="checkbox"/> Other (please specify)..... <input type="checkbox"/>
<p>Have the work conditions been normal during the work day? (please circle)</p>	<p>Yes No If not normal, please specify (e.g. problems with mask or extraction not working):</p>

Operational conditions in welding

<p>Worker ID</p>	
<p>What material was welded? (please circle)</p>	<p>Stainless steel Other (please specify)</p>
<p>Chromium and nickel content of the welded material?</p>	<p>Chromium content:%</p> <p>Nickel content:%</p> <p>Don't know (please circle if apply)</p>
<p>What welding method was used? (please tick box)</p>	<input type="checkbox"/> MMA (manual metal arc) <input type="checkbox"/> MAG (metal active gas) <input type="checkbox"/> MIG (metal inert gas) <input type="checkbox"/> TIG (tungsten inert gas) <input type="checkbox"/> SAW (submerged arc welding) <input type="checkbox"/> Plasma - plasma gas <input type="checkbox"/> Flux-cored welding <input type="checkbox"/> Other (please specify)..... <input type="checkbox"/>
<p>For gas welding, what gas mixture was used? e.g. 97.5% argon and 2.5% CO₂</p>	<p>Don't know (please circle if apply)</p>
<p>Was the welded material painted? (please circle)</p>	<p>Yes No Don't know</p>
<p>Was it a chromium containing paint? (please circle)</p>	<p>Yes No Don't know</p>
<p>What were the welding voltage and current used?</p>	<p>Voltage: V Current: A</p>

	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)	<input type="checkbox"/> Outdoor <input type="checkbox"/> Indoor in a space >1000 m3 <input type="checkbox"/> Indoor in a confined space of m3 <input type="checkbox"/> with no/natural ventilation <input type="checkbox"/> with forced ventilation (e.g. ship building) <input type="checkbox"/> with LEV*
During welding did you need to position your head in the fume plume? (please tick box if apply)	<input type="checkbox"/> Almost always, i.e. more than 90% arc time <input type="checkbox"/> Often, i.e. more than half the arc time <input type="checkbox"/> Sometimes, i.e. less than half arc time <input type="checkbox"/> Almost never, i.e. <10% of arc time
Worker ID	

* LEV=local exhaust ventilation