

# REACH-Exposure Scenario

Downstream use of PM Production



Template  
Revision: 5

Issue: April 2009

European Powder  
Metallurgy Association

End application made at your site: Metal Injection Moulding	<b>4</b>	<b>MIM : Sintering</b>	Raw Material: See list of Substances for MIM-Feedstocks REACH Status: Downstream use of substances						
Process Step	Workplace Exposure Route of exposure to humans				Environmental Exposure Emission to environment				
N°	Description See Table 2	Inhalation	Oral	Dermal	RMM in use See Table 1	Air	Water	Soil	RMM in use See Table 1
1	Sintering (incl. Secondary debinding and cooling)			yes	LEV	yes*			LEV
2	Cleaning and Maintenance Sintering			yes	LEV GPuv	yes*			LEV

## Operational Conditions (OC)

**Quality and Quantity of material used:** See *List of Substance Pressing and Sintering*

**Physical form (e.g. particle, gaseous media):** gaseous media

**Annual operating days (days/year):** 260

**Number of working hours per day (hours/day):** 8 hrs/day

**Number of shifts per day:** 1

**Number of employees involved in the process steps (see above):** 1 workers for sintering and maintenance.

**Frequency and duration (e.g. numbers of workers exposed and the time they are exposed and also how frequently are they exposed):** exposed time and frequency cannot be quantified:

### 1 Table of Risk Management Measures (RMM) in use

Type of Risk Management Measures - <u>Environment</u>	RMM in use (Codes) (Delete whichever does not apply)	Efficiency (if possible, provide a quantitative figure)
<b>To Air:</b>		
Fabric or bag filters	F	After burning system reduces emissions**
Other:		
<b>To control general diffuse site emissions:</b>		
Storage coverage	SC	unr
Other:		
Type of Risk Management Measures - <u>Workers</u> ***	RMM in use (Codes) (Delete whichever does not apply)	Efficiency (if possible, provide a quantitative figure)
Local Exhaust Ventilation (LEV)	LEV	LEVunr
Cleaning of site	C	Removal of ashes (waste) Efficiency cannot be quantified
• Respiratory protection equipment (RPE): Pattern of use (mandatory, voluntary, not required?)	Pattern of use mandatory: RPEum Pattern of use voluntary: RPEuv Pattern of use not required: RPEunr	RPEunr
• Face piece (e.g. quarter mask)	FP	FPunr
• Protection class (particles)	PC	PC****
• Gloves (G): Pattern or use (mandatory, voluntary, not	Pattern of use mandatory: GPum Pattern of use voluntary: GPuv	Sintering: GPum Maintenance: GPuv

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required?)	Pattern of use not required: GPunr	
• Type of glove (description)		Sintering: Cotton gloves in order to prevent contact to Ni containing alloys, or/ and in order to prevent finger marks on the parts or/and in order to be able to touch warm (max. about 80°C) parts Maintenance: Standard work gloves
• Other (please specify):		

### Comment:

\* Environmental impact is assessed during normal production; emergencies are not taken into consideration. Environmental Exposures are defined as environmental impact to the environment outside the plant.

\*\* Frequent measure of emissions by external party

\*\*\* General: There are several examinations by the company doctor which verifies that there is no negative impact on employees. Frequent examinations like breathing test, urine test, blood test and others are made

\*\*\*\* Depending on task um, uv or unr. To give a quantitative figure is not possible

### 2 Table of Process Steps Full Descriptions

Process Step		
N°	Description	Full Description
1	Sintering (incl. debinding and cooling)	Heating the compact, usually in a protective atmosphere, to a temperature below the melting point of the main constituent (around 1200-1380°C) for 30 minutes to 3-4 hours. The sintering of parts is usually done either in walking beam furnace or in a batch vacuum/hydrogen/inert gas furnace. Control over heating rate, temperature, time, and atmosphere is required.
2	Cleaning and Maintenance Sintering	Cleaning the sintering station, removal of ashes (waste)

### 3 Glossary

Term	English	French	German
RPE	Respiratory Protective Equipment	Equipement protecteur respiratoire (EPR)	Atemschutzazusrüstung
PPE	Personal Protective Equipment	Equipement protecteur personnel (EPP)	persönliche Schutzausrüstung
LEV	Local Exhaust Ventilation	Ventilation externe locale (VEL)	Absauganlage
RMM	Risk Management Method	Méthode de management du risque (MMR)	Risikomanagementmaßnahme
um	use mandatory	Utilisation obligatoire	Pflichtanwendung
uv	use voluntary	Utilisation volontaire	Freiwillige Anwendung
unr	use not required	Utilisation non requise	Anwendung nicht erforderlich
QM	quarter mask		
C	cleaning	Nettoyage	Reinigung

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