

1. Product Identification

Material:	Stainless steel w	Stainless steel welding fume (HSL SSWF-1)			
	Laboratory chem	ical matrix reference material			
Producer:	HSE's Science a	HSE's Science and Research Centre			
	Harpur Hill	Harpur Hill			
	Buxton				
	Derbyshire				
	UK				
	SK17 9JN				
Contact:	Owen Butler (00	44 (0)20 30282138)			
2. Product Descripti	on, Composition an	d Use			
Physical Form:	Condensed fume	Condensed fume from laser spot welding of stainless-steel components. Bulk			
	fume sieved to pass a 200 μm aperture. Oxidic material consistent with the				
	following major crystalline phases identified by X-ray diffraction as $Fe_3O_{4,}$				
	$Fe_3Mn_3O_8$, Mn_3O_4 and $FeCr_2O_4$.				
	In summary a sp	inel type oxide is the dominant crystalline phase which can be			
	represented predominately by the general formula AB_2O_4 (where A = Fe or Mn				
	and $B = Cr$, Fe or Mn). Nickel is also probably present as a mixed spinel oxide				
	(e.g. Fe_2NiO_4) although characteristic XRD peaks are masked by the other				
	spinel oxide com	pounds present.			
Composition:	Iron	30 % (<i>m/m</i>)			
	Manganese	23 % (<i>m/m</i>)			
	Chromium	8 % <i>(m/m)</i>			
	Nickel	4 % <i>(m/m)</i>			
	Copper	< 0.5 % <i>(m/m)</i>			
	Zinc	< 0.5 % <i>(m/m)</i>			

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CAS Number:

Identified use:A bottled unit HSL SSWF-1 consists of a nominal 1 g of bulk fume. This
laboratory chemical matrix reference material has been produced to assist
analysts in verifying the performance of the analytical methods they employ in
the elemental analysis of welding fume samples collected from the working
environment. In particular this material is designed to check the performance of
applying a dissolution step, as codified in standard validated methods such as
ISO 15202-2, ASTM D7035, NIOSH 7300, OSHA 125G, EN 13656 and EPA
3052 with subsequent analysis using atomic spectrometric techniques.

This material can also be used to assist in developing new sample dissolution procedures, preparing matrix recovery quality control charts or in the training of new analysts. This material is not to be used for instrument calibration.

3. Hazard Identification

Classification of the mixture

Iron (as Fe ₃ O ₄):	Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]			
	Skin irritation (Category 2). Eye irritation (Category 2). Specific target organ toxicity – single exposure (Category 3).			
	Classification according to EU Directive No 67/548/EEC:			
	Irritating to eyes, respiratory system and skin.			
Manganese (as Mn₃O₄):	Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]:			
	Acute toxicity, Dermal (Category 3).			
	Skin irritation (Category 2).			
	Eye irritation (Category 2).			
	Specific target organ toxicity – single exposure (Category 3).			
	Classification according to EU Directive No 67/548/EEC:			
	Irritating to eyes, respiratory system and skin.			
Labelling				
Iron (as Fe₃O₄):	Labelling according to Regulation (EC) No 1272/2008 [CLP]			



Hazard statement(s):

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Precautionary statement(s)

P261	Avoid breathing dust.
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- P280 Wear protective gloves/protective clothing/eye protection.
- P305/351/338 If in eyes, rinse cautiously with water for several minutes. Remove contact lens, if present and easy to do. Continue rinsing.

Labelling according to European Directive 67/548/EEC as amended R-phrase(s)

R36/37/38 Irritating to eyes, respiratory system and skin.

S-phrase(s)

S26	In case of contact with eyes, rinse immediately with plenty of
	water and seek medical advice.
S36/37/39	Wear suitable protective clothing, gloves and eye/face
	protection.

Manganese (as Mn₃O₄): Labelling according to Regulation (EC) No 1272/2008 [CLP]



Hazard statement(s):

- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H335 May cause respiratory irritation

Precautionary statement(s)

- P261 Avoid breathing dust
- P280 Wear protective gloves/protective clothing/eye protection

P305/351/338 If in eyes, rinse cautiously with water for several minutes. Remove contact lens, if present and easy to do. Continue rinsing.

Labelling according to European Directive 67/548/EEC as amended
R-phrase(s)

R36/37/38 Irritating to eyes, respiratory system and skin.

S-phrase(s)

Labelling according to Regulation (EC) No 1272/2008 [CLP]		
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection	
	water and seek medical advice.	
S26	In case of contact with eyes, rinse immediately with plenty of	

Nickel (as Fe₂NiO4):



Hazard statement(s):

H317 May cause an allergic skin reaction

Precautionary statement(s)

P280 Wear protective gloves/protective clothing/eye protection

Labelling according to European Directive 67/548/EEC as amended R-phrase(s)

R43 May cause sensitization by skin contact.

S-phrase(s)

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protectio

4. Routes of Exposure and First Aid Measures

Inhalation:Remove sources of contamination or remove victim to fresh air. Obtain medical
advice immediately.

Eyes:	Rinse with water. Ensure to remove contact lens before rinsing.
Skin:	Wash gently and thoroughly with water and non-abrasive soap. If irritation persists obtain medical attention.
Ingestion:	Rinse mouth thoroughly with water. If vomiting occurs naturally rinse mouth and repeat administration with water. Obtain medical advice immediately.

5. Fire Fighting Measures

Suitable Fire Extinguishers:	Not Applicable
Unsuitable Fire Extinguishers:	Not Applicable
Hazardous Decomposition:	Not Applicable

Special Procedures: Not Applicable

6. Accidental Release Measures

Exposure Controls:	Restrict access to area until completion of clean up. Ensure clean up is conducted by trained personnel, who are adequately protected. Wet swab spilled material; scrape up into sealable container and label.
Personal Protection:	For use in a laboratory setting only. Recommended use of laboratory safety glasses, disposable gloves and laboratory coat.
Disposal:	The material should be handled and disposed of in accordance with guidelines for handling laboratory reagents in force at the site of end use or disposal.

7. Handling and Storage

The material should be used, handled and stored only in an analytical chemistry laboratory setting. The material should only be handled in a fume cupboard or other similar enclosures. Any ventilated enclosures should be fitted with High Efficiency Particle Aerosol (HEPA) filters on the extraction port.

The material is a laboratory chemical matrix reference material and should be stored sealed in the supplied container in a dry enclosure when not in use.

8. Exposure Controls

Control Limits:	HSE EH40/2005 Workplace exposure limits (W		limits (WEL) (3 rd	
	edition 2018)			
	8-hour TWA		15 minute STEL	Inhalable limit
values	s (unless stated	d)		
Iron oxide (fume)	5 mg m ⁻³		10 mg m ⁻³	
Manganese and its inorganic				
compounds (as Mn)	0.05 mg m ⁻³	(respira	able limit value)	
Chromium and Chromium (II/III)				
compounds (as Cr)	0.5 mg m ⁻³		-	
Nickel and its inorganic compounds				
Compounds: Nickel and water insoluble				
nickel compounds (as Ni)	0.5 mg m ⁻³		-	
Copper oxide (fume)	0.2 mg m ⁻³		-	
	Deutsche For	<u>schun</u> g	gsgemeinschaft (Germany)
	8-hour TWA			
	MAK Respiral	ble limi	it value	
	8-hour TWA	Respir	able limit value	
Zinc oxide (fume)	0.1 mg m ⁻³		3	
Biological Exposure Limits:	Not Applicable			
9. Physical and Chemical Properties				
Appearance:	Powder.			
Odour:	Metallic.			
pH:	No data availa	ble.		
Boiling Point:	No data availa	ble.		
	NI I 2 N			
Melting Point:	No data availa	ble.		
Flash Point:	Not Applicable			

Combustibility:	Non-combustible.
Auto-Flammability:	Non-flammable.
Explosive:	None.
Oxidising Properties:	Not applicable.
Vapour Pressure:	Not applicable.
Relative Density: Solubility:	No data available. No data available.
Partition Coefficient:	Not applicable.
Miscibility:	Not applicable.
Vapour Density:	Not applicable.
Evaporation Loss:	Not applicable.
Viscosity:	Not applicable.
10. Stability and Reactivity	
Stability:	Stable.
Hazardous Polymerisation:	Not applicable.
Hazardous Decomposition Products:	None known.
11. Toxicological Information	
Toxic Effects:	Limited evidence for human carcinogenicity. Current classification: Group 2B (IARC Monograph 49, 1990)

Chronic Effects:	Long term respiratory exposure and short term high exposure may result in coughing, wheezing and decreased pulmonary function.
12. Ecological Information	
Mobility:	Not likely to be mobile
Persistence and Degradability:	Not likely to biodegrade
Bio-accumulative Potential:	No data available
Aquatic Toxicity:	No data available

13. Disposal Considerations

The material should be handled and disposed of in accordance with guidelines for handling laboratory reagents in force at the site of end use or disposal.

14. Transport Information

Not classified as hazardous for shipment

UN Number

ADR/RID:

IMDG:

IATA:

UN proper shipping name ADR/RID: IMDG: IATA:

Transport hazard class(es) ADR/RID: IMDG: IATA:

Packaging group

ADR/RID:

IMDG:

IATA:

Environmental hazards ADR/RID:

IMDG: IATA:

15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No 1907/2006

16. Other information

The above information is believed to be correct and based upon the present state of our knowledge and is applicable to this product with respect to appropriate safety precautions.

This laboratory chemical matrix reference material has been produced in accordance with international guidelines for the preparation and certification of reference materials.

In no event shall HSE be liable for any damages (including, without limitation, lost profits, business interruption, or lost information) arising out of the use of or inability to use HSE chemical matrix reference materials, even if HSE has been advised of the possibility of such damages.