

INVESTING IN A SAFER WORKING ENVIRONMENT



RESPIRABLE SILICA HAZARD FREE
INVESTMENT POWDER

WWW.X-SIL.COM

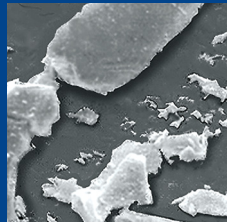


ENGINEERED IN THE UK - WORLD FIRST - PATENT PENDING



Traditional investment powders typically contain up to 10% Respirable Crystalline Silica (RCS).

The risks of long term exposure to RCS contained in traditional investment powder are well known within the industry. Unless the exposure to RCS is adequately controlled by the means of dust extraction and the use of adequate respiratory protective equipment, users are at risk of developing irreversible damage to their respiratory system called silicosis, which if severe is a life limiting disease.



RESPIRABLE SILICA HAZARD FREE



Goodwin Refractory Services Ltd (GRS) and its sister companies are the largest manufacturer of investment casting powder in the world.

GRS is globally acknowledged as the highest quality and most consistent investment powder manufacturer.

GRS is also recognised for its world class onsite technical support offered to customers and detailed knowledge of how its products work and the application of them, this ensures continued customer satisfaction and support.

WWW.X-SIL.COM



GRS has carried out extensive research and development to be able to provide the industry with a product that is not a classified health hazard in relation to respirable crystalline silica, yet still provides the same high level of casting quality and usability as a traditional based investment powder.

In April 2019 we achieved our goal and have applied for a Patent to cover this new technology that enables the production of an Investment Powder that is classified as non-hazardous.

X-SIL technology investment powder can be used like for like in place of traditional investment powders in terms of usage procedures, water ratios, mixing equipment, furnaces and burnout cycles, casting machines, casting temperatures and downstream processes.

X-SIL technology is designed for casting all jewellery alloys from brass up to 24kt Gold.

In order to obtain optimum results when casting with overpressure, the use of a GRS-LE casting flask is beneficial. This flask is made out of a specific grade of stainless steel which improves castability. GRS have also applied for a Patent to cover this new GRS-LE casting flask technology.



150°C/HR
300°F/HR
1.5 HRS

RESPIRABLE SILICA HAZARD FREE

WWW.X-SIL.COM

WHAT IS THE RISK AND HAZARD CLASSIFICATION OF X-SIL INVESTMENT POWDER?

X-SIL is NOT classified as a hazardous substance in accordance with the Globally Harmonized Standard (EC) No. 1272/2008 for hazardous substances under the CLP regulations and requires the following H&S statements on the product.

Required GHS Labels and Statements

Hazard Label:	Not applicable
Signal word:	Not applicable
Hazard class:	Not applicable
Hazard:	Not applicable
Precautionary:	Not applicable
Other Hazards:	None

Please see SDS for further information.

DO I STILL NEED TO WEAR RESPIRATORY PROTECTION WHILST USING X-SIL TECHNOLOGY PRODUCT?

As with all products of a dusty nature it is recommended that adequate respiratory protection is worn if the operative will be exposed to a higher level of respiratory dust than the local workplace exposure limit (see SDS and local work exposure regulations).

HOW DOES THIS COMPARE WITH TRADITIONAL SILICA BASED INVESTMENT POWDER?

Typically, traditional silica based investment powder contains upto 10% Respirable Crystalline Silica. At this level it is classed as STOT RE 2 Hazard.

STOT stands for Specific Target Organ Toxicity which in this case is the respiratory system. In order to control this risk within the working environment, strict dust extraction and respiratory protection control measures must be put in place to comply with the work exposure limit within the country it is being used.

The work exposure limit for RCS in Europe is 0.1mg/m³ over an 8 hour time weighted average (8 hour shift) and in the USA it is 0.05mg/m³.

For further information on work exposure limits and the risks associated with silica based investment powders please refer to our website.

730°C/1350°F
4 HRS

150°C/HR
300°F/HR
3.5 HRS

230°C/450°F
3 HRS

BURNOUT CYCLE

Burnout cycle remains the same as regular investment powder, meaning casters do not have to modify any burnout procedure. Can be used in all current burnout furnaces.


WATER : POWDER RATIOS

The Water : Powder ratios remain the same at 38 parts water to 100 parts powders 38:100 or adapted to suit the customers current product range which may be slightly higher.

INVESTING PROCEDURE

The investing procedure remains the same for vacuum mixing and conventional hand mixing using the same standard equipment currently used in any jewellery manufacturing operations.

WHAT IS THE RISK AND HAZARD CLASSIFICATION OF TRADITIONAL SILICA BASED INVESTMENT POWDER?

Hazard Label:	
Signal word:	WARNING
Hazard Class:	H373 May cause damage to lungs through prolonged or repeated exposure via inhalation
Precautionary:	P284 Wear respiratory protection P260 Do not breath dust P501 Dispose of contents/ container in accordance with local regulations
Other Hazards:	None

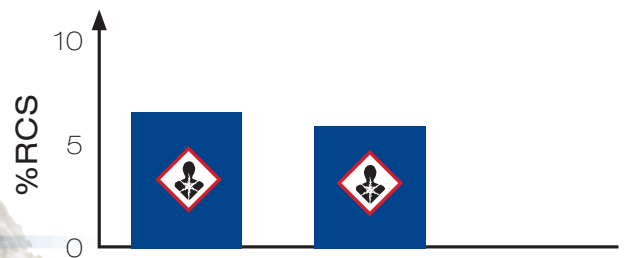
WHAT ABOUT DUST SUPPRESSANT TECHNOLOGY FROM THE USA?

There are some products from the USA that utilise "Dust Suppressant" technology and claim to significantly reduce the airborne dust levels of traditional silica based investment powder products.

Independent testing of a product which utilises "Dust Suppressant" technology was carried out by the Institute of Occupational Medicine (IOM)- Edinburgh, UK which showed that this product contained 5.6% respirable crystalline silica according to Size-Weighted Respirable Fraction (SWeRF) analysis of bulk materials and dustiness testing in accordance with EN15051-2.

This was compared by IOM to other products on the market of similar composition which do not utilise "Dust Suppressant" technology and the results showed respirable crystalline silica content in the range of 5.5 to 6.5%.

The IOM have independently tested a sample of our X-Sil product and confirmed there is no respirable crystalline silica present within the product. As with all refractory mineral dusts, traces of silica impurity can be present. Therefore, the X-Sil Safety Data Sheet (SDS) states that the product contains less than 0.1% silica which is below the OSHA and EU cut off value for hazard classification.



Traditional Silica based Investment Powder

Dust Suppressant Investment Powder



Machine vacuum mixing	38:100
Hand mix then vacuum	40:100

MACHINE VACUUM MIXING	Min.
Weigh out water and powder	0
Add powder to water	0
Mix under vacuum	4
Pour flasks	2
Vacuum flasks	2
Total time taken	8

HAND MIX THEN VACUUM	Min.
Weigh out water and powder	0
Add powder to water	0
Mix by hand	1
Mix with machine	3
Vacuum mixer bowl	1
Pour flasks	1
Vacuum flasks	2
Total time taken	8



FREQUENTLY ASKED QUESTIONS

DO I STILL NEED TO WEAR RESPIRATORY PROTECTION WHILST USING X-SIL TECHNOLOGY PRODUCT?

X-SIL Technology products are not classified as hazardous, however as with all products of a dusty nature it is recommended that adequate respiratory protection is worn if the operative will be exposed to a higher level of respiratory dust than the local workplace exposure limit (see SDS and local work exposure regulations).

INVESTING PROCEDURE

The investing procedure remains the same for vacuum mixing and conventional hand mixing, using the same standard equipment currently used in any jewellery manufacturing operations.

WATER : POWDER RATIOS

The Water : Powder ratios remain the same at 38 parts water to 100 parts powders 38:100 or adapted to suit the customer's current product range which may be slightly higher.

BURNOUT CYCLE

Burnout cycle remains the same as regular investment powder, meaning casters do not have to modify any burnout procedure. Can be used in all current burnout furnaces.

ALLOYS

Suitable to cast all non-precious and precious alloys including High Palladium White gold.

CLEAN OFF

X-SIL has been fully tested to make sure Quench and Clean Off is excellent in all working conditions and with all non-precious and precious alloys.

SURFACE FINISH

X-SIL has been engineered to at least match all cast surface finishes from our premium recipe investment powder range.

INVESTMENT POWDER STORAGE

To be stored under standard investments powder conditions <30°C/86°F

DISPOSAL

X-SIL is a non-hazardous waste product to be disposed of in line with local authority regulations.



GOODWIN REFRACTORY SERVICES LTD
Spencroft Road, Newcastle-under-Lyme, England ST5 9JE
+44 (0)1782 663600

WWW.GRSCASTINGPOWDERS.COM

WWW.X-SIL.COM