

## Preliminary Product Information Sheet

Microanalytical Reference Material

### OREAS-247\*-NP

Nano-particulate pressed powder pellet

Assigned Values				Assigned Values			
Analyte	Value	Uncertainty (95% CL)	Unit	Analyte	Value	Uncertainty (95% CL)	Unit
Li	31.8	0.6	ppm	In	0.058	0.002	ppm
Be	2.23	0.08	ppm	Sn	3.31	0.11	ppm
Na	0.499	0.016	g/100g	Sb	3295	65	ppm
Mg	1.22	0.02	g/100g	Cs	8.49	0.18	ppm
Al	6.08	0.10	g/100g	Ba	550	6	ppm
P	0.048	0.001	g/100g	La	33.1	1.0	ppm
S	0.714	0.018	g/100g	Ce	67	2	ppm
K	2.45	0.04	g/100g	Pr	7.90	0.34	ppm
Ca	0.826	0.012	g/100g	Nd	29.3	1.0	ppm
Sc	11.4	0.3	ppm	Sm	5.50	0.23	ppm
Ti	0.390	0.010	g/100g	Eu	0.96	0.04	ppm
V	82	2	ppm	Gd	4.23	0.27	ppm
Cr	97	4	ppm	Tb	0.53	0.02	ppm
Mn	0.036	0.001	g/100g	Dy	2.73	0.23	ppm
Fe	3.32	0.04	g/100g	Ho	0.54	0.06	ppm
Co	12.0	0.2	ppm	Er	1.49	0.13	ppm
Ni	45.9	1.1	ppm	Tm	0.23	0.03	ppm
Cu	42.2	1.1	ppm	Yb	1.54	0.12	ppm
Zn	86	1	ppm	Lu	0.24	0.02	ppm
Ga	16.3	0.5	ppm	Hf	3.57	0.14	ppm
As	3514	93	ppm	Ta	0.92	0.04	ppm
Rb	144	4	ppm	W	7.88	0.71	ppm
Sr	96	2	ppm	Au	43.10	1.53	ppm
Y	13.1	0.8	ppm	Tl	0.80	0.02	ppm
Zr	125	6	ppm	Pb	31.9	0.9	ppm
Nb	11.7	0.7	ppm	Bi	0.58	0.01	ppm
Mo	1.76	0.05	ppm	Th	12.6	0.2	ppm
Ag	2.16	0.06	ppm	U	2.53	0.04	ppm
Cd	0.065	0.009	ppm				

\*The original manufacturer (OREAS) is not liable for any issues occurring from the use of this material since they took no part in the manufacturing of the pellets.

The assigned values are the present best estimates of the true content for each element in the original powder. They are based on the certified values given for full ICP-OES and ICP-MS elemental suites by 4-acid (HNO<sub>3</sub>-HF-HClO<sub>4</sub>-HCl) digestion in the original certificate of analysis.

The uncertainty is based on the method specific 95 % confidence interval given in the original certificate.

Please note that four acid digestion is a nearly full dissolution, which is capable of dissolving most minerals, but not all.

Gold (Au) is based on the evaluation and combination of the respective certified values given for fire assay with gravimetric, AAS, ICP-OES or ICP-MS finish and X-ray photon assay in the original certificate of analysis and represent the mean of means.

The uncertainty of Gold is calculated by error propagation between the standard error between the two method specific values given in the original certificate and each respective method specific confidence interval at the 95 % level.

Detailed information and background data can be found in the original certificate of analysis and corresponding data package issued by OREAS.

**Pellet serial number:** {SERIENNUMMER}

**Manufactured for:** {METHODE}

**Size:** {GROESSE}

Date of dispatch: {LIEFERDATUM}

### Intended Use

This microanalytical reference material (MRM) is designed for use by laboratories undertaking the determination of major and trace element mass fractions in high-grade gold-bearing ore with metasediments and equivalent matrices with LA-ICP-MS (Laser Ablation Inductively Coupled Plasma Mass Spectrometry),  $\mu$ XRF/XRF (Micro X-ray Fluorescence Spectroscopy) and LIBS (Laser-Induced Breakdown Spectroscopy). It is suitable for calibration and as a secondary reference material for the assessment of a measurement procedure and quality control. Note that the material may only be used for a single purpose in the same measurement process. For example, it must not be used for calibration and method validation at the same time.

### Description of the MRM

This MRM is a nanoparticulate pressed powder pellet of the high-grade gold-bearing ore with metasediments powder "OREAS-247". The original powder, purchased from the Ore Research & Exploration Pty. Ltd. (OREAS), was subjected to our own material-specific milling protocol, and pressed without any binders using a programmable hydraulic press. The fortification of contrasting colour surrounding the reference material is, according to the manufacturer, an "organic compound". The exact composition is not specified any closer. The certificate of analysis is available on demand.

### Handling advice and Storage

Avoid touching the pellet's surface directly in order to prevent contamination. Also, do not clean the surface with any liquids as it may compromise the pellet's integrity.

Please note the label marks the bottom of the pellet.

If using a pressed pellet not ordered specifically for  $\mu$ XRF and or XRF please consider the sample thickness.

Store the MRM in a desiccator and or in a dark and dry environment.

The myStandards GmbH cannot be held responsible for changes that happen during storage of the material at the customer's premises, especially with respect to opened samples.

### Period of Validity

Provided the storage and handling conditions are met, no chemical alteration is known to exist, and the assigned values will remain stable. Therefore, the product information and assigned values for this MRM are valid for one year from the date of dispatch. This validity may be extended as further evidence of stability becomes available. The manufacturer will inform the customer if any alterations occur.

### Safety instructions

Nano-particulate powders can cause harm if ingested, inhaled or in contact with skin. In their pressed form however, they do not exhibit any dusting. If a pellet should accidentally break, we advise wearing a dust mask during clean up.

### Further Information

This MRM has been produced in accordance with the recommendations specified in ISO Guides 30 to 35. Due to processing a part of the sample material may be seen on the fortification, this does not reduce the performance of the MRM. Please refrain from using this part of the pellet.

The pellets are sold exclusively via the myStandards GmbH and authorised subcontractors.

### Document History

Version	Date	Changes applied
1.0	08.12.2022	First publication
2.0	24.04.2023	Adaptation to automatically fill in the date and individual pellet characteristics

### References

Hamlyn C., *CERTIFICATE OF ANALYSIS FOR Gold Ore (Central Victorian Goldfields, Australia) CERTIFIED REFERENCE MATERIAL OREAS 247*, Document: COA-1484-OREAS247-R1, Ore Research & Exploration Pty. Ltd., 2022, available online at [www.oreas.com](http://www.oreas.com)

*OREAS 247-DataPack.1.1.220621\_174926.xlsx*, Ore Research & Exploration Pty. Ltd., retrieved on 13.10.2022 from [www.oreas.com/crm/oreas-247/](http://www.oreas.com/crm/oreas-247/)

### Legal notice

Our order, sales and delivery conditions apply. The valid version of our general terms and conditions (status 01.09.2019) - can be found on our website: <https://www.my-standards.com/terms-and-conditions/>. They are also available on request.