ID Card
Gold

Version 4 July 2023

Notes:

- *This ID card is used to support the substance sameness discussions in SIEFs and to describe the substance to the best of the SIEF members' knowledge.*
- *It also aims at grouping communications relevant to the request of available data or information, the approval of the proposed Lead Registrant and the registration strategy with the SIEF.*
- *It is the responsibility of each individual registrant to identify their substance and to report company-specific identity in their Registration Dossier (section 1 of IUCLID).*

1. Identification of the substance

Table 1. Identification of the substance

	Original (in EC inventory)
Name	Gold
EC number	231-165-9
CAS number	7440-57-5
Description	Not available
Composition type	Mono-constituent substance

2. Synonyms and other identifiers of the substance

Table 2. Synonyms and other identifiers of the substance

IUPAC name	Gold
CAS name	Gold
Abbreviations	Au
Other commercial, brand or international names	None
Other identity codes	None

3. Substances (with core identifiers) also falling under this substance (with justification)

None

4. Information related to molecular and structural formula of the substance

Table 3. Information related to molecular and structural formula of the substance

Molecular formula	Au
Structural formula	Au
Smiles notation	[Au]
Optical activity	Not applicable
Typical ratio of (stereo) isomers	Not applicable
Molecular Weight / Molecular Weight range	196,97 g/mol

5. Typical composition of the substance

Table 4. Typical composition

	Name	Symbol / Formula	Min & Max concentrations (%)	Typical concentration (range) (%)
Main constituent(s)*	Gold	Au	99,5 - 100	≥99,99
Additive(s)**				
Main impurity(ies)#				
Other impurities##	Silver	Ag	0 – ≤ 0,5	< 0,01
	Platinum	Pt	0 – ≤ 0,01	< 0,0050
	Palladium	Pd	0 – ≤ 0,01	< 0,0050
	Cadmium	Cd	0 – ≤ 0,01	< 0,0005
	Copper	Cu	0 – ≤ 0,1	< 0,0050
	Lead	Pb	0 – ≤ 0,01	< 0,0005
	Tin	Sn	0 – ≤ 0,01	< 0,0050
	Zinc	Zn	0 – ≤ 0,01	< 0,0050
	Iron	Fe	0 – ≤ 0,01	< 0,0020
	Gallium	Ga	0 – ≤ 0,01	< 0,0015
	Indium	In	0 – ≤ 0,01	< 0,0025

	Chromium	Cr	0 – ≤ 0,01	< 0,0003
	Beryllium	Be	0 – ≤ 0,01	< 0,0005
	Manganese	Mn	0 – ≤ 0,01	< 0,0003
	Magnesium	Mg	0 – ≤ 0,01	< 0,0030
	Selenium	Se	0 – ≤ 0,01	< 0,0010
	Antimony	Sb	0 – ≤ 0,01	< 0,0010
	Arsenic	As	0 – ≤ 0,01	< 0,0030
	Nickel	Ni	0 – ≤ 0,01	< 0,0003
	Bismuth	Bi	0 – ≤ 0,01	< 0,0001
	Rhodium	Rh	0 – ≤ 0,01	< 0,0001
	Iridium	Ir	0 – ≤ 0,01	< 0,0001
	Ruthenium	Ru	0 – ≤ 0,01	< 0,0001
	Aluminium	Al	0 – ≤ 0,01	< 0,0001
	Calcium	Ca	0 – ≤ 0,01	< 0,0001
	Cobalt	Co	0 – ≤ 0,01	< 0,0001
	Silicon	Si	0 – ≤ 0,01	< 0,0001
	Tellurium	Te	0 – ≤ 0,01	< 0,0001
	Titanium	Ti	0 – ≤ 0,01	< 0,0001

* ≥ 80 % (w/w) for mono-constituent substances; ≥ 10 % (w/w) and < 80 % (w/w) for multi-constituent substances.

** ≥ 1 % (or lower if contributing to the hazard). An additive is a substance that has been intentionally added to stabilise the substance and which cannot be removed without changing the chemical nature to which it is added.

≥ 1 %. An impurity is an unintended constituent present in a substance, as produced. It may originate from the starting materials or be the result of secondary or incomplete reactions during the production process. While impurities are present in the final substance, they were not intentionally added.

< 1 % and potentially influencing the classification of the substance.

The composition given above is typical and should therefore represent the majority of gold as manufactured and/or imported in the EEA market. gold containing less than <typical concentration> <main constituent> may still be considered to be the same for the purpose of registration under REACH and may be referred to as impure gold to distinguish if from the typically pure gold.

6. Information on appearance, physical state and properties of the substance

Table 5. Appearance / physical state / properties of the solid substance

Physical state	Solid
Physical form*	Crystalline
Appearance	Soft yellow metal
Particle size**	Coarse powder / Massive object

Does the substance contain 'bound water'?#	No
Does the substance contain 'crystallisation water'?#	No
Does the solid hydrolyse?##	No
Is the solid hygroscopic?§	No

* Crystalline form: solid material whose constituent atoms, molecules, or ions are arranged in an ordered pattern extending in all three spatial dimensions. Amorphous form: solid material whose constituent atoms, molecules, or ions are randomly arranged.

**Fine powder: particles in the size range 100 – 2.500 nm. Coarse powder: particles in the size range 2.500 nm – 1 mm. Massive object: particles in the size range > 1 mm.

'Bound water': water molecules that are coordinated as bound ligands. 'Crystallisation water' or hydration water: water that occurs in crystals (necessary for the maintenance of crystalline properties) but which is not directly bound to the metal ion (a hydrate contains a definite % of crystallisation water e.g. CuSO4 x 5 H2O, an anhydride does not contain any water)

Hydrolysis: decomposition (cleavage of chemical bonds) by the addition of water.

§ Hygroscopic substance: readily attracts moisture from its surroundings in open air, through either absorption or adsorption.

7. Analytical data

Annex VI of REACH requires the registrant to describe the analytical methods and/or to provide the bibliographical references for the methods used for identification of the substance and, where appropriate, for the identification of impurities and additives. This information should be sufficient to allow the methods to be reproduced.

Table 6. Analytical methods for identification of the substance

Parameter / Method	Recommended for substance identification and sameness check	Applicable	Not applicable or not recommended
Elemental analysis			
ICP (ICP-MS or ICP-OES)	X	X	
Atomic absorption spectroscopy (AAS)		X	
Glow discharge mass spectrometry (GDMS)		X	
Molecular analysis			
Infrared (IR) spectroscopy			X
Raman spectroscopy			X
Mineralogical analysis			
X-Ray Fluorescence (XRF)	X		
X-Ray Diffraction (XRD)	X		
Morphology and particle sizing			
Electron microscopy (SEM, TEM, REM)* #		X	

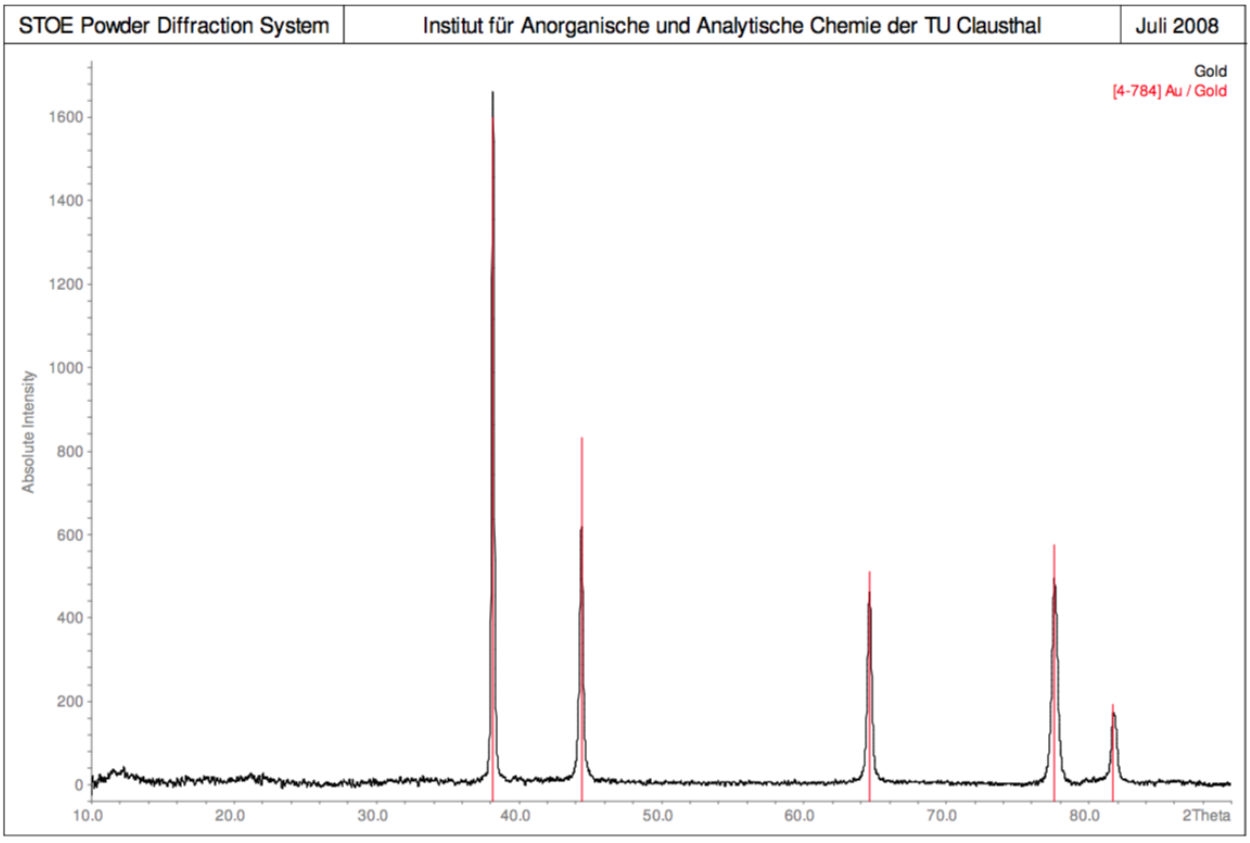
Laser diffraction* #			X
Particle size by other means (e.g. sieve analysis)#		X	
Surface area by N-BET* #			X
Other			
Optical emission (SPARK)	X		

* Analytical techniques particularly (but not exclusively) relevant for nanomaterials.

The choice of the technique for particle size depends on the size of the material as manufactured/imported/placed on the market/used.

Gold – Analytical Reference Information

XRD spectra of Gold



8. Lead Registrant

C. Hafner (Germany) volunteers to be the Lead Registrant for gold. The EPMF will provide support to the Lead Registrant as laid down in the EPMF Agreement.

9. Scope of the Registration Dossier

The uses included in this Registration Dossier are listed on the EPMF website.