ID Card
Ammonium perrhenate

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).*

DISCLAIMER

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1. Identification of the substance

Table 1. Identification of the substance

	Original (in EC inventory)
Name	Ammonium perrhenate
EC number	237-075-6
CAS number	13598-65-7
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

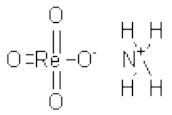
IUPAC name	Ammonium oxido(trioxo)rhenium
CAS name	Rhenate (ReO41-), ammonium (1:1), (T-4)-
Abbreviations	None
Other commercial, brand or international names	Rhenate(ReO4 1-), ammonium (1:1) Ammonium tetraoxorhenate (VII) Ammonium perrhenate(VII) Azanium oxido(trioxo)rhenium Perrhenic acid ammonium salt
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	H4NO4Re
Structural formula	
Smiles notation	[O-][Re](=O)(=O)=O.[NH4+]
Optical activity	Not applicable
Typical ratio of (stereo) isomers	Not applicable
Molecular Weight / Molecular Weight range	268,24 g/mol

5. Typical composition of the substance

Table 4. Typical composition

	Name	Symbol / Formula	Typical concentration (%)	Concentration range (%)
Main constituent(s)*	Ammonium perrhenate	H4NO4Re	≥ 99,5	99,5 - 100§
Other impurities##	Other	B, Hf, Nb, Ta, Pt	≤ 0,5	0 – 0,5

* ≥ 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.

§ Corresponds to 69,1–69,4 % Re, 6,7 % NH4 and 23,7–23,9 % O.

The composition given above is typical and should therefore represent the majority of Ammonium perrhenate as manufactured and/or imported in the EEA market. Ammonium perrhenate containing less than 69,1 % Re may still be considered to be the same for the purpose of registration under REACH and may be referred to as impure Ammonium perrhenate to distinguish it from the typically pure Ammonium perrhenate.

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	White powder
Particle size**	Coarse powder
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.

** Nanoform: particles in the size range 1 - 100 nm (for full definition of a nanomaterial, see http://ec.europa.eu/environment/chemicals/nanotech/index.htm#definition). 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. Cf. also water/moisture content in Table 4.

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		
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			
Gravimetric analysis of Nitrogen and Rhenium		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.

8. Lead Registrant

Heraeus Precious Metals GmbH & Co. KG (Germany) volunteers to be the Lead Registrant for Ammonium perrhenate. 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 summarised in the table below and accompanied with the appropriate text.

Table 7. Reported uses of the substance

Description of use	Sector of Use (SU)	Process Category (PROC)	Environmental Release Category (ERC)
Manufacture	• 3: Industrial uses: Uses of substances as such or in preparations at industrial sites • 9: Manufacture of fine chemicals • 14: Manufacture of basic metals, including alloys	• 2: Use in closed, continuous process with occasional controlled exposure • 3: Use in closed batch process (synthesis or formulation) • 4: Use in batch and other process (synthesis) where opportunity for exposure arises[2] • 5: Mixing or blending in batch processes for formulation of preparations and articles	• 1: Manufacture of substances

		(multistage and/or significant contact)[2] • 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities • 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) • 26: Handling of solid inorganic substances at ambient temperature[3]	
Use as an intermediate	• 3: Industrial uses: Uses of substances as such or in preparations at industrial sites • 9: Manufacture of fine chemicals • 14: Manufacture of basic metals, including alloys	• 1: Use in closed process, no likelihood of exposure • 3: Use in closed batch process (synthesis or formulation) • 4: Use in batch and other process (synthesis) where opportunity for exposure arises[2] • 7: Industrial spraying[1] • 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities • 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) • 22: Potentially closed processing operations with minerals/metals at elevated temperature - Industrial setting[3] • 27a: Production of metal powders (hot processes)[3]	• 6a: Industrial use resulting in manufacture of another substance (use of intermediates)

[1] Compatible with intermediate use only if registrant explains in Appendix 3 this applies to pre-transformation/ post-transformation steps of the intermediate.

[2] Incompatible with Strictly Controlled Conditions - those registrants that want to register Ammonium Perrhenate as an SCC intermediate, should thus make sure this PROC is not applicable to their use (and does not appear in IUCLID section 3.5 of their registration).

[3] Compatible with Strictly Controlled Conditions only if registrant explains in Appendix 3 how rigorous containment and other Strictly Controlled Conditions are ensured during processing of intermediate.