



ID Card

Perrhenic acid (in solution)

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

All data and information contained in this document shall be treated by the receiving party (i) in full confidence with the adequate respect of any confidential and/or proprietary nature of such information and (ii) only in the framework of the purpose of agreeing on substance sameness, Lead Registrant and overall REACH Strategy for the concerned Substance under REACH (the 'Purpose').

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1. Identification of the substance

Table 1. Identification of the substance

	Original (in EC inventory)
Name	Perrhenic acid
EC number	237-380-4
CAS number	13768-11-1
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	Hydroxy(trioxo)rhenium
CAS name	Rhenate (ReO ₄ ¹⁻),hydrogen (1:1), (T-4)-
Abbreviations	None
Other commercial, brand or international names	Hydrogen tetraoxorhenate(1-) Hydrogen tetraoxorhenate (VII)
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	HO4Re
Structural formula	
Smiles notation	O=[Re](=O)(=O)O
Optical activity	Not applicable
Typical ratio of (stereo) isomers	Not applicable
Molecular Weight / Molecular Weight range	251,21 g/mol

5. Typical composition of the substance

Table 4. Typical composition

	Name	Symbol / Formula	Typical concentration (%)	Concentration range (%)
Main constituent(s)*	Perrhenic acid	HO4Re	80 [§]	80 - 82
Impurities[#]	Water	H2O	19,5	18 - 20
Other impurities^{##}	Other	B, Hf, Nb, Ta, V, Co, Cr, Mg	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 60,0 % Re.

The composition given above is typical and should therefore represent the majority of Perrhenic acid as manufactured and/or imported in the EEA market. Perrhenic acid containing less than 60,0 % Re may still be considered to be the same for the purpose of registration under REACH and may be referred to as impure Perrhenic acid to distinguish it from the typically pure Perrhenic acid.

An aqueous solution of Perrhenic acid can be concentrated by evaporation up to a maximum of ≥ 80.0 ≤ 82.0 % (w/w) of Perrhenic acid. Evaporation to a higher acid content leads to decomposition of Perrhenic acid in rhenium oxides and rhenium. Thus the solvent cannot be further removed without affecting the chemical stability of the substance.

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

Table 5. Appearance / physical state / properties of the substance in solution*

Physical state	Solution
Solvent	Water
Concentration range of substance in solution	≥ 80 %
pH (range) of the solution	< 1
Excess acid	No data available

* For liquid substances (solvent cannot be separated from substance without changing the identity of the substance) and not for mixtures, suspensions, and other non-substance forms in which the substance is manufactured and/or imported under REACH.

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)			
Glow discharge mass spectrometry (GDMS)			
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			

* 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 Perrhenic acid. 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	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 1: Use in closed process, no likelihood of exposure • 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 arises² • 5: Mixing or blending in batch processes for formulation of preparations and articles (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) 	<ul style="list-style-type: none"> • 1: Manufacture of substances



		<ul style="list-style-type: none"> • 22: Potentially closed processing operations with minerals/metals at elevated temperature - Industrial setting³ • 23: Open processing and transfer operations with minerals/metals at elevated temperature² • 26: Handling of solid inorganic substances at ambient temperature³ • 27a: Production of metal powders (hot processes)³ • 27b: Production of metal powders (wet processes)³ 	
Use as an intermediate	<ul style="list-style-type: none"> • 3: Industrial uses: Uses of substances as such or in preparations at industrial sites • 9: Manufacture of fine chemicals • 10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys) • 14: Manufacture of basic metals, including alloys 	<ul style="list-style-type: none"> • 3: Use in closed batch process (synthesis or formulation) • 4: Use in batch and other process (synthesis) where opportunity for exposure arises² • 7: Industrial spraying¹ • 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) 	<ul style="list-style-type: none"> • 6a: Industrial use resulting in manufacture of another substance (use of intermediates)
Use as a catalyst	<ul style="list-style-type: none"> • 8: Manufacture of bulk, large scale chemicals (including petroleum products) 	<ul style="list-style-type: none"> • 1: Use in closed process, no likelihood of exposure • 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities 	<ul style="list-style-type: none"> • 4: Industrial use of processing aids in processes and products, not becoming part of articles

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 Perrhenic acid 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.