ID Card
Diammonium sodium hexakis(nitrito-N)rhodate

Version 18 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	Diammonium sodium hexakis(nitrito-N)rhodate
EC number	264-713-0
CAS number	64164-17-6
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

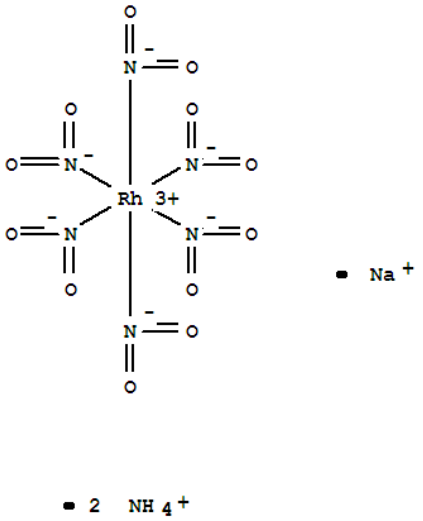
IUPAC name	
CAS name	
Abbreviations	
Other commercial, brand or international names	Rhodate(3-),hexakis(nitrito-N)-diammonium sodium, (OC-6-11)- Rhodate(3-),hexakis(nitrito-kN) diammonium sodium, (OC-6-11)- (9CI) Diammonium sodium hexanitritorhodate(3-) Diammonium sodium hexanitrorhodate(3-)
Other identity codes	

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	H4N.1/2N6O12Rh.1/2Na
Structural formula	
Smiles notation	[Rh+3].[Na+].[NH4+].O=[N-]=O.O=[N-]=O.O=[N-]=O.O=[N-]=O.O=[N-]=O.O=[N-]=O.[NH4+]
Optical activity	
Typical ratio of (stereo) isomers	
Molecular Weight / Molecular Weight range	438,01 g/mol

5. Typical composition of the substance

- Diammonium sodium hexakis(nitrito-N)rhodate – compostion 'high purity'

Table 4. Typical composition

	Name	Symbol / Formula	Min & Max concentrations (%)§	Typical concentration (%)§§
Main constituent(s)*	Diammonium sodium hexakis(nitrito-N)rhodate	$H_4N.1/2N_6O_{12}Rh.1/2Na$	80-100$	93
Impurities#	Ammonium chloride	NH_4Cl	3-11	7
	Precious metal impurities	Ag, Au, Ir, Pd, Pt, Ru	0 - 1	< 1
	Copper (as copper chloride)§	$CuCl_2$	0 - 1	< 1
	Nickel (as nickel chloride)§	$NiCl_2$	0 – <0.01	< 0.01
	Chromium (as chromium(III) chloride)§	$CrCl_3$	0 - 1	< 1
	Lead (as lead chloride)§	$PbCl_2$	0 - <0.3	< 0.3
	Several minor (especially metallic) impurities which do not affect the classification of the substance because of their non-hazardous nature or because they do not exceed the classification cut-off limits in the substance	e.g. Bi, Fe, Mg, Te	0 – 1	< 1

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

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.

§ Concentration ranges define the substance sameness criteria agreed by all EPMF Members in preparation of the communication with other SIEF members.

§§ Typical concentration refers to the representative sample used for testing.

$ Corresponds to 16 - 17 % Rh.

§ impurity expected to be present as chloride-salt

The composition given above is the theoretical composition of the dry substance. In practice, Diammonium sodium hexakis(nitrito-N)rhodate is only produced and used in a wetted form (usually with 20-30% water content) because of the oxidising and self-heating properties of the dry form. The water can however be separated without affecting the chemical stability of the substance. The dry form is thus considered the same substance as the substance in wetted form, which can be considered a mixture under REACH.

The composition given above is typical of the pure substance and would represent a significant fraction of the Diammonium sodium hexakis(nitrito-N)rhodate as manufactured and/or imported in the EEA market. Diammonium sodium hexakis(nitrito-N)rhodate containing less Diammonium sodium hexakis(nitrito-N)rhodate may still be considered to be the same for the purpose of registration under

REACH and may be referred to as 'low impurity' or 'high impurity' Diammonium sodium hexakis(nitrito-N)rhodate to distinguish it from the typically pure Diammonium sodium hexakis(nitrito-N)rhodate.

- Diammonium sodium hexakis(nitrito-N)rhodate – compostion 'low impurity'

Table 5. Typical composition

	Name	Symbol / Formula	Min & Max concentrations (%)§	Typical concentration (%)§§
Main constituent(s)*	Diammonium sodium hexakis(nitrito-N)rhodate	$H_4N.1/2N_6O_{12}Rh.1/2Na$	80-100$	93
Impurities#	Ammonium chloride	NH_4Cl	3-11	7
	Precious metal impurities	Ag, Au, Ir, Pd, Pt, Ru	0 - 1	< 1
	Copper (as copper chloride)§	$CuCl_2$	0 - 1	< 1
	Nickel (as nickel chloride)§	$NiCl_2$	≥0.01 - <0.1	< 0.1
	Chromium (as chromium(III) chloride)§	$CrCl_3$	0 - 1	< 1
	Lead (as lead chloride)§	$PbCl_2$	0 - <0.3	< 0.3
	Several minor (especially metallic) impurities which do not affect the classification of the substance because of their non-hazardous nature or because they do not exceed the classification cut-off limits in the substance	e.g. Bi, Fe, Mg, Te	0 – 1	< 1

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

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.

§ Concentration ranges define the substance sameness criteria agreed by all EPMF Members in preparation of the communication with other SIEF members.

§§ Typical concentration refers to the representative sample used for testing.

$ Corresponds to 16 - 17 % Rh.

§ impurity expected to be present as chloride-salt

The composition given above is the theoretical composition of the dry substance. In practice, Diammonium sodium hexakis(nitrito-N)rhodate is only produced and used in a wetted form (usually with 20-30% water content) because of the oxidising and self-heating properties of the dry form. The water can however be separated without affecting the chemical stability of the substance. The dry form is thus considered the same substance as the substance in wetted form, which can be considered a mixture under REACH.

The composition given above is typical of the 'low impurity' substance and would represent a significant fraction of the Diammonium sodium hexakis(nitrito-N)rhodate as manufactured and/or imported in the EEA market. Diammonium sodium hexakis(nitrito-N)rhodate containing less Diammonium sodium hexakis(nitrito-N)rhodate may still be considered to be the same for the purpose of registration under

REACH and may be referred to as 'high impurity' Diammonium sodium hexakis(nitrito-N)rhodate to distinguish it from the typically 'high purity' or 'low impurity' Diammonium sodium hexakis(nitrito-N)rhodate.

- Diammonium sodium hexakis(nitrito-N)rhodate – compostion 'high impurity'

Table 6. Typical composition

	Name	Symbol / Formula	Min & Max concentrations (%)§	Typical concentration (%)§§
Main constituent(s)*	Diammonium sodium hexakis(nitrito-N)rhodate	$H_4N.1/2N_6O_{12}Rh.1/2Na$	80-100$	93
Impurities#	Ammonium chloride	NH_4Cl	3-11	7
	Precious metal impurities	Ag, Au, Ir, Pd, Pt, Ru	0 - 1	< 1
	Copper (as copper chloride)§	$CuCl_2$	0 - 1	< 1
	Nickel (as nickel chloride)§	$NiCl_2$	≥0.1 - <0.5	< 0.5
	Chromium (as chromium(III) chloride)§	$CrCl_3$	0 - 1	< 1
	Lead (as lead chloride)§	$PbCl_2$	≥0.3 - <0.5	< 0.5
	Several minor (especially metallic) impurities which do not affect the classification of the substance because of their non-hazardous nature or because they do not exceed the classification cut-off limits in the substance	e.g. Bi, Fe, Mg, Te	0 – 1	< 1

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

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.

§ Concentration ranges define the substance sameness criteria agreed by all EPMF Members in preparation of the communication with other SIEF members.

§§ Typical concentration refers to the representative sample used for testing.

$ Corresponds to 16 - 17 % Rh.

§ impurity expected to be present as chloride-salt

The composition given above is the theoretical composition of the dry substance. In practice, Diammonium sodium hexakis(nitrito-N)rhodate is only produced and used in a wetted form (usually with 20-30% water content) because of the oxidising and self-heating properties of the dry form. The water can however be separated without affecting the chemical stability of the substance. The dry form is thus considered the same substance as the substance in wetted form, which can be considered a mixture under REACH.

The composition given above is typical of the 'high impurity' substance and would represent a significant portion of the Diammonium sodium hexakis(nitrito-N)rhodate as manufactured and/or imported in the EEA market.

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

Table 7. Appearance / physical state / properties of the solid substance

Physical state	Solid
Physical form*	Crystalline / Amorphous
Appearance	White to green powder
Particle size**	Coarse powder
Does the solid hydrolyse?#	Yes
Is the solid hygroscopic?§	Yes / 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.

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 8. 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			
Mineralogical analysis			
X-Ray Fluorescence (XRF)		X	
X-Ray Diffraction (XRD)	X		
Morphology and particle sizing			

Electron microscopy (SEM, TEM, REM)* #			
Laser diffraction* #	X		
Particle size by other means (e.g. sieve analysis)#			
Surface area by N-BET* #			
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

Vale Europe Limited (United Kingdom) volunteers to be the Lead Registrant for Diammonium sodium hexakis(nitrito-N)rhodate. 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.

10. Analytical reference information

Below the results of IR analysis of a reference sample used for testing.

Spectrometer: Perkin Elmer Spectrum 2, equipped with a single pass, diamond ATR accessory

Technique: solid sample placed directly onto the diamond crystal

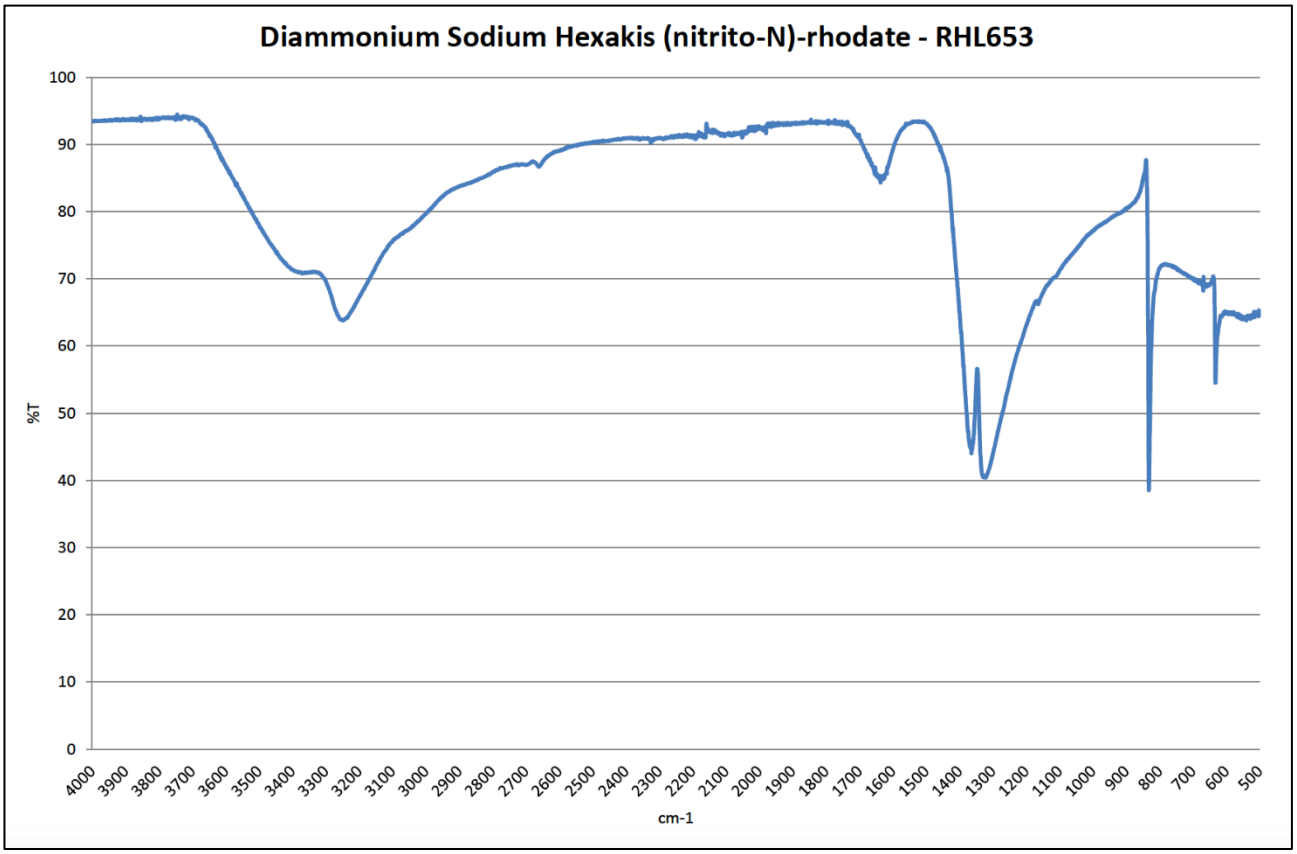


Figure 1. IR spectrum of Diammonium sodium hexakis(nitrito-N)rhodate