

# Analyses

## TerraLID ID

**ID and name:** A0 terralid\_analysis\_id

**Provided by:** TerraLID system

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The ID of the analysis in the TerraLID database.

**Allowed values and other constraints:** t.b.d.

**Example:** t.b.d.

## 1. Laboratory ID

**ID and name:** A1 analysis\_lab\_id

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The ID(s) of the analysis in a laboratory and/or another database.

**Allowed values and other constraints:** free text

**Example:** 2024-TR01

## 2. Analysis type

**ID and name:** A2 analysis\_lia\_type

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The type of analysis for measuring the lead isotope composition.

**Allowed values and other constraints:** controlled vocabulary

## 3. Preparation protocol

**ID and name:** A3 analysis\_lia\_preparation

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Information about how the sample was prepared for analysis.

*with the two subproperties:*

### 3.1 Description

**ID and name:** A3.1 analysis\_lia\_preparation\_description

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** The way the sample was prepared for analysis.

**Allowed values and other constraints:** free text

**Example:** Dissolution with aqua regia at 80°C and evaporation to dryness, followed by dissolution in 2% HNO<sub>3</sub>.

### 3.2 Publication

**ID and name:** A3.2 analysis\_lia\_preparation\_publication

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** If the preparation protocol was already published, the publication of the protocol.

*with the five subproperties:*

#### 3.2.1 Persistent Identifier

**ID and name:** B5.1 relation\_pid

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The persistent identifier or TerraLID ID associated with a resource or related research output. If referring to another entity in the TerraLID database, the TerraLID identifier must be used.

*with the two subproperties:*

##### 3.2.1.1 VALUE

**ID and name:** B5.1.1 relation\_pid\_value

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** Value of the persistent identifier or TerraLID ID.

**Allowed values and other constraints:** valid persistent identifier according to the options listed in B5.1.2 Type .

**Example:** 10.60510/ICDP5054ESYI201

##### 3.2.1.2 TYPE

**ID and name:** B5.1.2 relation\_pid\_type

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The type of the identifier.

**Allowed values and other constraints:** controlled vocabulary

### 3.2.2 Full reference

**ID and name:** B5.2 relation\_text

**Provided by:** data provider, API (DOI)

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** The full reference of a publication.

**Allowed values and other constraints:** free text

**Example:** Palinkaš, L. A., 1985, Lead isotope patterns in galenas from some selected ore deposits in Croatia and NW Bosnia, Geološki Vjesnik, 38, 175–89.

### 3.2.3 Kind of relation

**ID and name:** B5.3 relation\_kind

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** Relationship between item and the research output.

**Allowed values and other constraints:** controlled vocabulary

### 3.2.4 Type of resource

**ID and name:** B5.4 relation\_resource

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** Type of resource or research output.

**Allowed values and other constraints:** controlled vocabulary

### 3.2.5 Additional details

**ID and name:** B5.5 relation\_detail

**Provided by:** data provider

**Obligation:** optional

**Occurrences:** 0–n

**Definition:** Additional information about the relation, e.g., if the related work addresses a specific aspect of the item (e.g., the geological setting).

**Allowed values and other constraints:** free text

**Example:** Information about the dating of the site.

## 4. Analysed material

**ID and name:** A4 analysis\_lia\_material

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Capture here if specific materials within a sample are analysed, such as mineral separates or laser ablation of individual mineral species within the same specimen.

**Allowed values and other constraints:** free text

**Example:** only malachite analysed

## 5. Separation protocol

**ID and name:** A5 analysis\_lia\_separation

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Information about the protocol used for the separation of lead from the sample matrix.

*with the two subproperties:*

### 5.1 Description

**ID and name:** A5.1 analysis\_lia\_separation\_description

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** If unpublished, provide description of the protocol used for the separation of lead from the sample matrix. Otherwise, list all deviations from the published protocol.

**Allowed values and other constraints:** free text

**Example:** t.b.d.

### 5.2 Publication

**ID and name:** A5.2 analysis\_lia\_separation\_publication

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The publication of the protocol used for separating lead from the sample matrix.

*with the five subproperties:*

#### 5.2.1 Persistent Identifier

**ID and name:** B5.1 relation\_pid

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The persistent identifier or TerraLID ID associated with a resource or related research output. If referring to another entity in the TerraLID database, the TerraLID identifier must be used.

*with the two subproperties:*

#### 5.2.1.1 VALUE

**ID and name:** B5.1.1 relation\_pid\_value

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** Value of the persistent identifier or TerraLID ID.

**Allowed values and other constraints:** valid persistent identifier according to the options listed in B5.1.2 Type .

**Example:** 10.60510/ICDP5054ESYI201

#### 5.2.1.2 TYPE

**ID and name:** B5.1.2 relation\_pid\_type

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The type of the identifier.

**Allowed values and other constraints:** controlled vocabulary

### 5.2.2 Full reference

**ID and name:** B5.2 relation\_text

**Provided by:** data provider, API (DOI)

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** The full reference of a publication.

**Allowed values and other constraints:** free text

**Example:** Palinkaš, L. A., 1985, Lead isotope patterns in galenas from some selected ore deposits in Croatia and NW Bosnia, Geološki Vjesnik, 38, 175–89.

### 5.2.3 Kind of relation

**ID and name:** B5.3 relation\_kind

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** Relationship between item and the research output.

**Allowed values and other constraints:** controlled vocabulary

### 5.2.4 Type of resource

**ID and name:** B5.4 relation\_resource

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** Type of resource or research output.

**Allowed values and other constraints:** controlled vocabulary

### 5.2.5 Additional details

**ID and name:** B5.5 relation\_detail

**Provided by:** data provider

**Obligation:** optional

**Occurrences:** 0–n

**Definition:** Additional information about the relation, e.g., if the related work addresses a specific aspect of the item (e.g., the geological setting).

**Allowed values and other constraints:** free text

**Example:** Information about the dating of the site.

## 6. Measurement device

**ID and name:** A6 analysis\_lia\_instrument

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** Information about the instrument used to measure the lead isotope composition.

*with the three subproperties:*

### 6.1 Instrument type

**ID and name:** A6.1 analysis\_lia\_instrument\_type

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The type of instrument.

**Allowed values and other constraints:** controlled vocabulary

### 6.2 Instrument model

**ID and name:** A6.2 analysis\_lia\_instrument\_model

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** The manufacturer and model name of the instrument.

**Allowed values and other constraints:** controlled vocabulary

### 6.3 Persistent identifier (PIDinst)

**ID and name:** A6.3 analysis\_lia\_instrument\_pid

**Provided by:** data provider

**Obligation:** optional

**Occurrences:** 0–1

**Definition:** The full URL of the instrument's [PIDinst](#).

**Allowed values and other constraints:** is valid PIDinst

**Example:** <http://hdl.handle.net/21.11157/cd5777a9-07c4-4e80-a770-9f294f09894d>

## 7. Analyte Pb concentration

**ID and name:** A7 analysis\_lia\_pb\_concentration

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The lead concentration of the analyte.

*with the eight subproperties:*

### 7.1 Analytical method

**ID and name:** B4.1 chemistry\_method

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The method used to determine the chemical composition.

**Allowed values and other constraints:** controlled vocabulary

### 7.2 Analysed compound

**ID and name:** B4.2 chemistry\_compound

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** The analysed chemical compound (chemical element or oxide).

**Allowed values and other constraints:** controlled vocabulary, not available if a mass spectrometric-method is recorded in B4.1 Analytical method .

### 7.3 Analysed isotope

**ID and name:** B4.3 chemistry\_icp\_isotope

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The isotope used for quantification of a chemical element.

**Allowed values and other constraints:** controlled vocabulary, only available if a mass spectrometric-method is recorded in B4.1 Analytical method .

### 7.4 Value

**ID and name:** B4.4 chemistry\_value

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** The concentration of the analysed chemical compound.

**Allowed values and other constraints:** decimal number

**Example:** 15.3

## 7.5 Unit

**ID and name:** B4.5 chemistry\_unit

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** The unit in which the concentration of the analysed chemical compound is given.

**Allowed values and other constraints:** controlled vocabulary

## 7.6 Uncertainty type

**ID and name:** B4.6 chemistry\_uncertainty\_type

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The type of analytical uncertainty.

**Allowed values and other constraints:** controlled vocabulary

## 7.7 Confidence level

**ID and name:** B4.7 chemistry\_uncertainty\_sigma

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** Sigma value of the reported absolute analytical uncertainty.

**Allowed values and other constraints:** 1, 2, 3

**Example:** 2

## 7.8 Uncertainty value

**ID and name:** B4.8 chemistry\_uncertainty\_value

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** Value of the absolute analytical uncertainty.

**Allowed values and other constraints:** decimal number

**Example:** 0.3

# 8. Mean total intensity of analyte

**ID and name:** A8 analysis lia\_pb\_intensity

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** The mean total intensity (sum of all isotope signals) during the analysis.

*with the two subproperties:*

## 8.1 Value

**ID and name:** A8.1 analysis\_liq\_pb\_intensity\_value

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The value of the mean total intensity.

**Allowed values and other constraints:** decimal number

**Example:** 40.5

## 8.2 Unit

**ID and name:** A8.2 analysis\_liq\_pb\_intensity\_unit

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The SI unit in which the mean total intensity is given.

**Allowed values and other constraints:** controlled vocabulary

# 9. Reference materials

**ID and name:** A9 analysis\_liq\_standard-pb

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** Information about the reference material(s) for lead isotopes used during the analysis for quality control and/or correction of instrumental fractionation.

*with the six subproperties:*

## 9.1 Name of lead isotope reference material

**ID and name:** A9.1 analysis\_liq\_standard-pb\_name

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** The name of the reference material for lead isotopes.

**Allowed values and other constraints:** controlled vocabulary

## 9.2 Publication of lead isotope reference material

**ID and name:** A9.2 analysis\_lia\_standard-pb\_publication

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** Publication reporting the values of the reference material's lead isotope ratios used for mass bias correction. These are not necessarily the values originally published for the reference material.

*with the five subproperties:*

### 9.2.1 Persistent Identifier

**ID and name:** B5.1 relation\_pid

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The persistent identifier or TerraLID ID associated with a resource or related research output. If referring to another entity in the TerraLID database, the TerraLID identifier must be used.

*with the two subproperties:*

#### 9.2.1.1 VALUE

**ID and name:** B5.1.1 relation\_pid\_value

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** Value of the persistent identifier or TerraLID ID.

**Allowed values and other constraints:** valid persistent identifier according to the options listed in B5.1.2 Type .

**Example:** 10.60510/ICDP5054ESYI201

#### 9.2.1.2 TYPE

**ID and name:** B5.1.2 relation\_pid\_type

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The type of the identifier.

**Allowed values and other constraints:** controlled vocabulary

### 9.2.2 Full reference

**ID and name:** B5.2 relation\_text

**Provided by:** data provider, API (DOI)

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** The full reference of a publication.

**Allowed values and other constraints:** free text

**Example:** Palinkaš, L. A., 1985, Lead isotope patterns in galenas from some selected ore deposits in Croatia and NW Bosnia, Geološki Vjesnik, 38, 175–89.

### 9.2.3 Kind of relation

**ID and name:** B5.3 relation\_kind

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** Relationship between item and the research output.

**Allowed values and other constraints:** controlled vocabulary

### 9.2.4 Type of resource

**ID and name:** B5.4 relation\_resource

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** Type of resource or research output.

**Allowed values and other constraints:** controlled vocabulary

### 9.2.5 Additional details

**ID and name:** B5.5 relation\_detail

**Provided by:** data provider

**Obligation:** optional

**Occurrences:** 0–n

**Definition:** Additional information about the relation, e.g., if the related work addresses a specific aspect of the item (e.g., the geological setting).

**Allowed values and other constraints:** free text

**Example:** Information about the dating of the site.

## 9.3 Measured values of lead isotope reference material

**ID and name:** A9.3 analysis\_lia\_standard-pb\_measured

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The measured lead isotope ratios of the reference material.

*with the seven subproperties:*

### 9.3.1 Name

**ID and name:** B6.1 lia\_ratio\_name

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The lead isotope ratio for which the value is reported.

**Allowed values and other constraints:** 206Pb/204Pb, 207Pb/204Pb, 208Pb/204Pb, 204Pb/206Pb, 207Pb/206Pb,

208Pb/206Pb, 207Pb/208Pb, 206Pb/208Pb

**Example:** 206Pb/204Pb

### 9.3.2 Value

**ID and name:** B6.2 lia\_ratio\_value

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** Value of the lead isotope ratio.

**Allowed values and other constraints:** decimal number

**Example:** 18.59123

### 9.3.3 Uncertainty

**ID and name:** B6.3 lia\_ratio\_uncertainty\_type

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Type of analytical uncertainty for the lead isotope ratio.

**Allowed values and other constraints:** controlled vocabulary

### 9.3.4 Confidence level

**ID and name:** B6.4 lia\_ratio\_uncertainty\_sigma

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Sigma value of the reported absolute analytical uncertainty.

**Allowed values and other constraints:** 1, 2, 3

**Example:** 2

### 9.3.5 Absolute uncertainty

**ID and name:** B6.5 lia\_ratio\_uncertainty\_value\_absolute

**Provided by:** data provider, TerraLID system

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Value of the reported absolute analytical uncertainty.

**Allowed values and other constraints:** decimal number

**Example:** 0.00008

### 9.3.6 Relative uncertainty

**ID and name:** B6.6 lia\_ratio\_uncertainty\_value\_relative

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Value of relative analytical uncertainty for the lead isotope ratio in per cent (%). If provided, the TerraLID

system will calculate the corresponding absolute values.

**Allowed values and other constraints:** decimal number

**Example:** 0.1

### 9.3.7 Source

**ID and name:** B6.7 lia\_ratio\_source

**Provided by:** TerraLID system

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** Whether the date was reported in the publication or calculated by the TerraLID system from other published values.

**Allowed values and other constraints:** original, calculated

**Example:** original

## 9.4 Name of thallium isotope reference material

**ID and name:** A9.4 analysis\_lia\_standard-tl\_name

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** The name of the thallium reference material used during the analysis for quality control and/or correction of instrumental fractionation.

**Allowed values and other constraints:** controlled vocabulary

## 9.5 Measured $^{205}\text{TI}/^{203}\text{TI}$ ratio of thallium isotope reference material

**ID and name:** A9.5 analysis\_lia\_standard-tl\_measured

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** The measured  $^{205}\text{TI}/^{203}\text{TI}$  ratio of the reference material.

**Allowed values and other constraints:** decimal number

**Example:** 2.38714

## 9.6 Concentration of the thallium isotope reference material

**ID and name:** A9.6 analysis\_lia\_standard-tl\_concentration

**Provided by:** data provider

**Obligation:** optional

**Occurrences:** 0–1

**Definition:** The concentration of the thallium reference material added to the sample in ppb (e.g. ng/g,  $\mu\text{g/l}$ ).

**Allowed values and other constraints:** number

**Example:** 100

## 10. Mass bias correction model

**ID and name:** A10 analysis\_liu\_correction

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The model(s) used for mass bias correction of the lead isotope data.

**Allowed values and other constraints:** controlled vocabulary

## 11. Laboratory

**ID and name:** A11 analysis\_liu\_laboratory

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** The laboratory that performed the lead isotope analysis.

*with the nine subproperties:*

### 11.1 Role

**ID and name:** B1.1 person\_role

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** The role in which the person is related to the linked information.

**Allowed values and other constraints:** controlled vocabulary

**Example:** Author

### 11.2 First names

**ID and name:** B1.2 person\_name\_first

**Provided by:** data provider, API (ORCID ID)

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** The first and middle name(s) of the person.

**Allowed values and other constraints:** free text

**Example:** Jane

### 11.3 Last Name

**ID and name:** B1.3 person\_name\_last

**Provided by:** data provider, API (ORCID ID)

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The last name of the person.

**Allowed values and other constraints:** free text

**Example:** Doe

#### 11.4 Persistent Identifier

**ID and name:** B1.4 person\_pid

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** Persistent identifier(s) assigned to the person.

*with the two subproperties:*

##### 11.4.1 VALUE OF PERSISTENT IDENTIFIER

**ID and name:** B1.4.1 person\_pid\_value

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** A persistent identifier assigned to the analysed material.

**Allowed values and other constraints:** Valid persistent identifier according to S1.3 Type of persistent identifier

**Example:** 0000–0001–2345–678X

##### 11.4.2 TYPE OF PERSISTENT IDENTIFIER

**ID and name:** B1.4.2 person\_pid\_type

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The type of the persistent identifier.

**Allowed values and other constraints:** controlled vocabulary

#### 11.5 Affiliation name

**ID and name:** B1.5 person\_affiliation\_name

**Provided by:** data provider, API (ORCID ID, ROR ID)

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** The name of the person's affiliation.

**Allowed values and other constraints:** free text

**Example:** Institute of Time Travels

#### 11.6 ROR ID

**ID and name:** B1.6 person\_affiliation\_ror

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The [ROR](#) of the person's affiliation.

**Allowed values and other constraints:** is valid ROR ID

**Example:** 09af7gtg53

## 11.7 Address

**ID and name:** B1.7 person\_affiliation\_address

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The address of the person's affiliation.

**Allowed values and other constraints:** free text

**Example:** Teleporter Avenue 123, Ankh–Morpok, United States of Humanities

## 11.8 Mail address

**ID and name:** B1.8 person\_mail

**Provided by:** data provider, API (ORCID ID)

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The mail address of the person.

**Allowed values and other constraints:** is valid mail address

**Example:** jane.doe@timetravels.int

## 11.9 Website

**ID and name:** B1.9 person\_url

**Provided by:** data provider, API (ORCID ID)

**Obligation:** optional

**Occurrences:** 0–1

**Definition:** The URL of a person.

**Allowed values and other constraints:** is valid URL

**Example:** <https://www.timetravels.int/members/jane-doe>

# 12. Date of analysis

**ID and name:** A12 analysis\_lia\_date

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** The day of the analysis.

**Allowed values and other constraints:** date formatted as YYYY-MM-DD

**Example:** 2024-02-24

# 13. Description

**ID and name:** A13 analysis\_lia\_description

**Provided by:** data provider

**Obligation:** optional

**Occurrences:** 0–1

**Definition:** Additional information about the analytical procedure not captured elsewhere.

**Allowed values and other constraints:** free text

**Example:** t.b.d.

## 14. Lead isotope ratios

**ID and name:** A14 analysis\_lia\_ratio

**Provided by:** data provider, TerraLID system

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** Mass-bias corrected lead isotope ratios and analytical uncertainty. The TerraLID system will calculate all ratios not reported in the original publication.

*with the seven subproperties:*

### 14.1 Name

**ID and name:** B6.1 lia\_ratio\_name

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The lead isotope ratio for which the value is reported.

**Allowed values and other constraints:** 206Pb/204Pb, 207Pb/204Pb, 208Pb/204Pb, 204Pb/206Pb, 207Pb/206Pb, 208Pb/206Pb, 207Pb/208Pb, 206Pb/208Pb

**Example:** 206Pb/204Pb

### 14.2 Value

**ID and name:** B6.2 lia\_ratio\_value

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** Value of the lead isotope ratio.

**Allowed values and other constraints:** decimal number

**Example:** 18.59123

### 14.3 Uncertainty

**ID and name:** B6.3 lia\_ratio\_uncertainty\_type

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Type of analytical uncertainty for the lead isotope ratio.

**Allowed values and other constraints:** controlled vocabulary

### 14.4 Confidence level

**ID and name:** B6.4 lia\_ratio\_uncertainty\_sigma

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Sigma value of the reported absolute analytical uncertainty.

**Allowed values and other constraints:** 1, 2, 3

**Example:** 2

#### 14.5 Absolute uncertainty

**ID and name:** B6.5 lia\_ratio\_uncertainty\_value\_absolute

**Provided by:** data provider, TerraLID system

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Value of the reported absolute analytical uncertainty.

**Allowed values and other constraints:** decimal number

**Example:** 0.00008

#### 14.6 Relative uncertainty

**ID and name:** B6.6 lia\_ratio\_uncertainty\_value\_relative

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Value of relative analytical uncertainty for the lead isotope ratio in per cent (%). If provided, the TerraLID system will calculate the corresponding absolute values.

**Allowed values and other constraints:** decimal number

**Example:** 0.1

#### 14.7 Source

**ID and name:** B6.7 lia\_ratio\_source

**Provided by:** TerraLID system

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** Whether the date was reported in the publication or calculated by the TerraLID system from other published values.

**Allowed values and other constraints:** original, calculated

**Example:** original

### 15. Age model parameters

**ID and name:** A15 analysis\_lia\_age\_model

**Provided by:** TerraLID system

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** Age model parameters calculated from the mass-bias corrected lead isotope ratios.

with the nine subproperties:

## 15.1 Age model name

**ID and name:** A15.1 analysis\_lia\_age\_model\_name

**Provided by:** TerraLID system

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The age model used for calculating the parameters

**Allowed values and other constraints:** SK75, CR75, AJ84, representing the age models defined by [Stacey & Kramers \(1975\)](#), [Cumming & Richards \(1975\)](#), and [Albarède & Juteau \(1984\)](#), respectively.

**Example:** SK75

## 15.2 Model age

**ID and name:** A15.2 analysis\_lia\_age\_model\_Tmod

**Provided by:** TerraLID system

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Value of the model age in million years (Ma).

**Allowed values and other constraints:** decimal number

**Example:** 250.54

## 15.3 Uncertainty of model age

**ID and name:** A15.3 analysis\_lia\_age\_model\_Tmod\_uncertainty

**Provided by:** TerraLID system

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Uncertainty of the model age.

**Allowed values and other constraints:** decimal number

**Example:** t.b.d.

## 15.4 Mu

**ID and name:** A15.4 analysis\_lia\_age\_model\_mu

**Provided by:** TerraLID system

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Value of mu ( $\mu$ ).

**Allowed values and other constraints:** decimal number

**Example:** 9.86

## 15.5 Uncertainty of mu

**ID and name:** A15.5 analysis\_lia\_age\_model\_mu\_uncertainty

**Provided by:** TerraLID system

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Uncertainty of mu.

**Allowed values and other constraints:** decimal number

**Example:** t.b.d.

## 15.6 Kappa

**ID and name:** A15.6 analysis\_lia\_age\_model\_kappa

**Provided by:** TerraLID system

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Value of kappa ( $\kappa$ ).

**Allowed values and other constraints:** decimal number

**Example:** 3.92

## 15.7 Uncertainty of kappa

**ID and name:** A15.7 analysis\_lia\_age\_model\_kappa\_uncertainty

**Provided by:** TerraLID system

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Uncertainty of kappa.

**Allowed values and other constraints:** decimal number

**Example:** t.b.d.

## 15.8 Omega

**ID and name:** A15.8 analysis\_lia\_age\_model\_omega

**Provided by:** TerraLID system

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Value of omega ( $\omega$ ).

**Allowed values and other constraints:** decimal number

**Example:** t.b.d.

## 15.9 Uncertainty of omega

**ID and name:** A15.9 analysis\_lia\_age\_model\_omega\_uncertainty

**Provided by:** TerraLID system

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** Uncertainty of omega.

**Allowed values and other constraints:** decimal number

**Example:** t.b.d.

## 16. Relations

**ID and name:** A16 analysis\_lia\_relation

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** –n

**Definition:** Information about related entities and other research output such as publications providing relevant information about the analysis. This includes any literature from which information about the analysis was extracted.

*with the five subproperties:*

### 16.1 Persistent Identifier

**ID and name:** B5.1 relation\_pid

**Provided by:** data provider

**Obligation:** recommended

**Occurrences:** 0–n

**Definition:** The persistent identifier or TerraLID ID associated with a resource or related research output. If referring to another entity in the TerraLID database, the TerraLID identifier must be used.

*with the two subproperties:*

#### 16.1.1 VALUE

**ID and name:** B5.1.1 relation\_pid\_value

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** Value of the persistent identifier or TerraLID ID.

**Allowed values and other constraints:** valid persistent identifier according to the options listed in [B5.1.2 Type](#).

**Example:** 10.60510/ICDP5054ESYI201

#### 16.1.2 TYPE

**ID and name:** B5.1.2 relation\_pid\_type

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1

**Definition:** The type of the identifier.

**Allowed values and other constraints:** controlled vocabulary

## 16.2 Full reference

**ID and name:** B5.2 relation\_text

**Provided by:** data provider, API (DOI)

**Obligation:** recommended

**Occurrences:** 0–1

**Definition:** The full reference of a publication.

**Allowed values and other constraints:** free text

**Example:** Palinkaš, L. A., 1985, Lead isotope patterns in galenas from some selected ore deposits in Croatia and NW Bosnia, Geološki Vjesnik, 38, 175–89.

### 16.3 Kind of relation

**ID and name:** B5.3 relation\_kind

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** Relationship between item and the research output.

**Allowed values and other constraints:** controlled vocabulary

### 16.4 Type of resource

**ID and name:** B5.4 relation\_resource

**Provided by:** data provider

**Obligation:** mandatory

**Occurrences:** 1–n

**Definition:** Type of resource or research output.

**Allowed values and other constraints:** controlled vocabulary

### 16.5 Additional details

**ID and name:** B5.5 relation\_detail

**Provided by:** data provider

**Obligation:** optional

**Occurrences:** 0–n

**Definition:** Additional information about the relation, e.g., if the related work addresses a specific aspect of the item (e.g., the geological setting).

**Allowed values and other constraints:** free text

**Example:** Information about the dating of the site.