

## Poederlee Member (Lillo Formation)

**Unit name:** Poederlee Member**Hierarchical unit name:** Lillo Formation**Type:** Member**Code:** LiPd**Author(s):**

- Compiled by: Louwye Stephen, Deckers Jef & Vandenberghe Noël
- Modification of: De Meuter & Laga (1976) after Vincent (1889);

**Alternative names:** Former Poederlee Formation, including Heiende facies, Hukkelberg gravel**Origin of the name:** The origin of the unit name is discussed in De Meuter & Laga (1976) and Louwye, Deckers & Vandenberghe (2020)**Status:** Formal**Date:** 01/05/2022**How to refer:** Louwye, S., Deckers, J., & Vandenberghe, N., 2023. The Poederlee Member, 01/09/2023. National Commission for Stratigraphy Belgium.  
<http://ncs.naturalsciences.be/lithostratigraphy/Poederlee-Member>**Characterizing description**

The unit is defined as a fine-grained, slightly glauconitic (< 5%) unit with discrete lenses of clay in the base. The sediments are bioturbated. The upper part of the member is oxidized in the type area, and sometimes limonitic sandstone with moulds of shells occurs (Geets, 1962). The grain-size distribution of the Poederlee Member is very well sorted with a modal size between 175 and 200  $\mu\text{m}$  and fines (<44  $\mu\text{m}$ ) content around 5 % (Gullentops, 1963; Buffel et al., 2001). The Heiende facies (c. 2 m) is a fine-grained without glauconite present in the upper part of the unit in the Antwerp Campine area (Buffel et al., 2001). A distinct basal gravel, the Hukkelberg gravel, is present at the base of the member. The discoidal pebbles show long distance transport and the rates of flattening and roundness at different localities are indicative of transport from the west. The gravel also contains silicified oolites typical for the Kieseloolite Formation in the east and ultimately derived from northeastern (Gulinck, 1960; Gullentops & Huyghebaert, 1999).

**Type section, type locality, type borehole, type CPT and/or type geophysical borehole**

The type area is the village Poederlee (c. 30 km east of Antwerp) and the type section is in the hills north of Poederlee.

The type borehole is the Oud-Turnhout borehole (GSB 017E 0401; DOV [kb8d17e-B497](#)) between 30.5 and 38.71 m depth (Buffel et al., 2001).

The type log is from the Turnhout borehole (GSB 017E0398; DOV [kb8d17e-B494](#)) between 31 and 38 m depth (Louwye et al., 2020).

**Description upper boundary**

The Poederlee Member outcrops in the type area and is to the north unconformably covered by the Merksplas Formation and the Mol Formation.

### Description lower boundary

The Poederlee Member rests unconformably on the upper Miocene Kasterlee Formation.

### Thickness

According to Schiltz et al. (1993) the thickness of the Poederlee Member is maximum 10 m.

### Occurrence

The Poederlee Member occurs in the central part of the Antwerp Campine area in northern Belgium, roughly between the villages of Poederlee in the south and Beerse in the north.

### Regional correlations

A correlation of the Poederlee Member with the Oorderen Member of the Lillo Formation of the Antwerp area is proposed (Buffel et al. 2001; Louwye & De Schepper, 2010). A large number of mollusc moulds in the limonitic sandstone were studied in great detail by Geets (1962) and indicated faunal similarities with the mollusc fauna from the Kruisschans Member.

### Age

Biostratigraphical analysis with dinoflagellate cysts on samples from the Oud-Turnhout borehole (GSB 017E 0401; DOV [kb8d17e-B497](#)) indicates deposition during the late Zanclean – Piacenzian (Louwye & De Schepper, 2010).

### Dataset

Data in the LIS are part of the [DOV-Neogene data collection, including links to the GSB-collection data sheets](#):

Name	GSB name	DOV name	GSB Collections URL	DOV URL
Borehole Turnhout	017E0398	<a href="#">kb8d17e-B494</a>	<a href="https://collections.naturalsciences.be/ssh-geology-archives/arch/017e/017e0398.txt">https://collections.naturalsciences.be/ssh-geology-archives/arch/017e/017e0398.txt</a>	<a href="https://www.dov.vlaanderen.be/data/boring/1996-083221">https://www.dov.vlaanderen.be/data/boring/1996-083221</a>
Borehole Oud-Turnhout	017E0401	<a href="#">kb8d17e-B497</a>	<a href="https://collections.naturalsciences.be/ssh-geology-archives/arch/017e/017e0401.txt">https://collections.naturalsciences.be/ssh-geology-archives/arch/017e/017e0401.txt</a>	<a href="https://www.dov.vlaanderen.be/data/boring/1998-083226">https://www.dov.vlaanderen.be/data/boring/1998-083226</a>

### References

Buffel, P., Vandenberghe, N., Goolaerts, S. & Laga, P., 2001. The Pliocene in four boreholes in the Turnhout area (North-Belgium): the relation with the Lillo and Mol Formations. *Aardkundige Mededelingen*, 11, 1–9.

Geets, S., 1962. Stratigrafische positie van het Poederliaan in de Antwerpse Kempen. *Natuurwetenschappelijk Tijdschrift*, 44, 143–152.

Gulinck, M., 1960. Un gisement de kiezeloolithes à Lichtaart (Campine). Comparaison avec les cailloutis à kiezeloolithes des collines flamandes. *Bulletin Société belge de Géologie, de Paléontologie et d'Hydrologie*, 69, 191–204.

Gullentops, F., 1963. Etude de divers faciès quaternaires et tertiaires dans le Nord et l'Est de la Belgique. *Excursion O-P. 6e Congrès International de Sédimentologie, Belgique et Pays-Bas*, 20 p.

Gullentops, F. & Huyghebaert, L., 1999. A profile through the Pliocene of the Northern Kempen, Belgium. *Aardkundige Mededelingen*, 9, 191–202.

Louwe, S., Deckers, J. & Vandenberghe, N., 2020. The Pliocene Lillo, Poederlee, Merksplas, Mol and Kieseloolite Formations in northern Belgium: a synthesis. *Geologica Belgica*, 23/3-4, 297-313. <https://doi.org/10.20341/gb.2020.016>

Louwe, S. & De Schepper, S., 2010. The Miocene–Pliocene hiatus in the southern North Sea Basin (northern Belgium) revealed by dinoflagellate cysts. *Geological Magazine*, 147/5, 760–776. <https://doi.org/10.1017/S0016756810000191>

Schiltz, M., Vandenberghe, N. & Gullentops, F., 1993. *Geologische kaart van België, Vlaams Gewest: Lier, kaartblad 16. 1/50 000*. Belgische Geologische Dienst en Bestuur Natuurlijke Rijkdommen en Energie, Brussel.