

Beerzel Member (Kasterlee Formation)

Unit name: Beerzel Member**Hierarchical unit name:** Kasterlee Formation**Type:** Member**Code:** KIBe**Author(s):** Verhaegen Jasper & Vandenberghe Noël**Alternative names:** formerly part of the at the time not yet subdivided Kasterlee Formation sensu De Meuter and Laga (1976) and Laga et al. (2001).**Origin of the name:** Description of the Kasterlee Formation at Heist-op-den-Berg and Beerzel by Fobe (1995)**Status:** Formal**Date:** 01/05/2022**How to refer:** Verhaegen, J. & Vandenberghe, N., 2023. The Beerzel Member, 01/09/2023. National Commission for Stratigraphy Belgium. <http://ncs.naturalsciences.be/lithostratigraphy/Beerzel-Member>**Characterizing description**

The Beerzel Member in the type area can be recognized by its yellow to white colour and low glauconite and clay content, and is consistently underlain by a more glauconite-rich unit – the Hallaar Member, and overlain by a unit with clay-sand alternations – the Heist-op-den-Berg Member. It has a homogeneous appearance, except for possible irregular brownish intercalations due to oxidation above the groundwater table, linked to groundwater fluctuations. Glauconite content is significantly lower in the Beerzel Member compared to the underlying Hallaar Member (2–6%, glauconite/quartz ratio of 0.02–0.08). The grain size distribution curves show a very well sorted sediment with a modal grain size between 185 and 204 μm and only a small amount of material outside of the 100 to 300 μm range. The content of dioctahedral 2:1 Al-rich layer silicates (3–9%, 2:1 Al-clay/quartz ratio of 0.03–0.11) is lower than in the Hallaar Member and similar to the sandy layers of the overlying Heist-op-den-Berg Member, and there is an overall decrease to the top. Feldspar content remains largely constant within the member (4–6%, feldspar/quartz ratio of 0.05–0.08).

On CPT's, the Beerzel Member can be identified based on an interval with constant q_c values, a bit higher than in the underlying and overlying members. Based on CPT profiles, the Beerzel Member also occurs further north, such as near Kasterlee, though not consistently (Vandenberghe et al., 2020).

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

The proposed type section of the lower three members of the Kasterlee Formation, including the Beerzel Member, is the sunken lane atop the hill of Heist-op-den-Berg (DOV TO-20140919 and TO-20190617). The type section is described in detail in Verhaegen et al. (2014) and Verhaegen et al. (2020). The member name was originally proposed after a study of this section by Fobe (1995).

Description upper boundary

The Beerzel Member is overlain by the Heist-op-den-Berg Member. In type area in the south, the boundary is placed at the occurrence of the first dm-scale purple clay layer at the base of the Heist-op-den-Berg Member (Verhaegen et al., 2020). The overlying Heist-op-den-Berg Member can be easily distinguished based on the alternation of fine sand and clay layers, in contrast to the homogenous fine sand of the Beerzel Member. Towards the north, the Beerzel Member is often absent. Where it is present, it can be recognized by the constant CPT signal or gamma-ray signal compared to the strongly fluctuating signal of the overlying Heist-op-den-Berg Member (e.g. ON-Kasterlee-1; Verhaegen et al., 2020, Fig. 10). In cores as well, the boundary between both members occurs where the alternation of clay and sand layers starts (Vandenberghe et al., 2020).

Description lower boundary

The Beerzel Member is always underlain by the Hallaar Member. This is a transitional boundary which can be identified based on a shift from the brown-green colour of the Hallaar Member to the yellow-white colour of the Beerzel Member, due to a strong decrease in glauconite and goethite content in the Beerzel Member (Verhaegen et al., 2020). The Beerzel Member is a more well sorted fine sand with a lower clay content compared to the Hallaar Member. The CPT and gamma-ray signal of the Beerzel Member is more constant, due to its homogenous character, compared to the Hallaar Member.

Thickness

In the type section, the Beerzel Member has a thickness of 4 m. Where the Beerzel Member occurs towards the north, the thickness fluctuates but is generally less than 4 m.

Occurrence

The Beerzel Member occurs consistently in the southern occurrence area of the Kasterlee Formation, in the area Beerzel – Heist-op-den-Berg – Olen. Towards the northeast, in the area Geel-Kasterlee-Retie, the member occurs locally. It appears to be absent in the area Mol-Dessel and further to the east, as well as in the northwestern occurrence area of the Kasterlee Formation.

Regional correlations

The Beerzel Member and overlying Heist-op-den-Berg Member are part of a progradational coastal barrier and back-barrier lagoon system, in which the Beerzel Member represents the coastal barrier sand. As such, the Beerzel Member is laterally equivalent with the Heist-op-den-Berg Member deposited contemporaneously more to the southeast, and with a lower part of the shallow open marine Lichtaart Member deposited to the west.

Age

No age data are available for the Beerzel Member, yet it is underlain by the late Tortonian to Messinian Campine Diest Sand and overlain by the Heist-op-den-Berg Member in which dinoflagellate cyst biozone DN10 of late Tortonian to Messinian Miocene age was identified.

Dataset

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

Subset of the Kasterlee Formation: <https://www.dov.vlaanderen.be/data/opdracht/2020-021580>

Subset of the Heist-op-den-Berg type section: <https://www.dov.vlaanderen.be/data/opdracht/2020-022424>

References

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