

Edegem Member (Berchem Formation)

Unit name: Edegem Member

Hierarchical unit name: Berchem Formation

Type: Member

Code: BcEd

Author(s):

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- Modification of: De Meuter & Laga (1976)

Alternative names: This unit includes the Burcht gravel at its base.

Origin of the name: The origin of the name of the unit is discussed in De Meuter & Laga (1976) and Louwye et al. (2020).

Status: Formal

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Characterizing description

The Edegem Member consists of green to greyish-green fine-grained, clayey and glauconitic sand (mode $190 \mu\text{m} \pm 38 \mu\text{m}$). The clay content is $4.7 \pm 3.2\%$ and the D90 of the grain size distribution is $284 \pm 97 \mu\text{m}$ (De Meuter & Laga, 1976; Verhaegen, 2020). Large numbers of mollusks (*Lucinoma borealis*, *Panopea meynardi*, *Pseudamussium lilli* etc.) are dispersed throughout the sediment.

The granulometry of the Edegem Member displays an upwards coarsening signature as observed in two locations in the Antwerp area (Bastin, 1966), corroborated by the log-interpretation of the Edegem Member in borehole Oelegem. The grain-size distribution curves of glauconite are similar to the quartz grain size distribution curve. This indicates that the glauconites of the Edegem Member are reworked and were transported together with the quartz grains (Adriaens, 2015; Adriaens & Vandenberghe, 2020). The glauconite content of the Edegem Member is smaller than in the Antwerpen Member (Adriaens, 2015), which explains the paler color of sediments of the former compared to the latter.

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

The name is derived from the type locality Edegem, a village circa 5 km south of Antwerp. According to De Meuter & Laga (1976), a type section was designated by Nyst (1861) in the (now disappeared) submerged Pauwels brickyard near Fortification VI at Wilrijk, south of Antwerp. No permanent outcropping type section for the member exists. The lithology of the member was described in following temporary outcrops in the Antwerpen area (see Figure 0-1 for a synthetic overview):

Antwerpen – Zuidstation III AR (De Meuter et al., 1976)

Antwerpen – Zuidstation VI AR (De Meuter et al., 1976)

Antwerpen – Zuidstation IV AR (De Meuter et al., 1976)

Antwerpen – Zuidstation V AR (De Meuter et al., 1976)

Antwerpen – Zuidstation AR (De Meuter et al., 1976)

Antwerpen – Montignystraat AM (De Meuter et al., 1976)

Antwerpen – Van Rijswijcklaan AV (De Meuter et al., 1976)

Antwerpen – Nachtegalenpark AN (De Meuter et al., 1976)

Wilrijk – Ter Weyde (Hooyberghs, 1996 & Hoedemakers & Dufraing, 2021)

Wilrijk – Revalidatiecentrum (Hoedemakers & Dufraing, 2021)

Description upper boundary

The Edegem Member is overlain by the Kiel Member of the Berchem Formation. This boundary coincides with an upwards decrease in shell and clay content, coarsening of the grain-size and generally with darkening of the sediment colour.

Description lower boundary

The base of the Edegem Member is formed by the Burcht gravel consisting of dark rounded flint pebbles, shell fragments, shark teeth and bone fragments. Reworked foraminifers, septaria and glauconite provide evidence for substantial reworking of sediment from the underlying lower Oligocene Boom Formation (Vandenberghe et al., 1998). Afterwards, the reworked septaria have been frequently drilled by *Martesia rugosa* (Janssen, 1964; Van der Mark, 1965). The Burcht gravel rests unconformably on the lower Oligocene Boom Formation.

Thickness

The Edegem Member reaches its maximum thickness of about 12 m just east of the city of Antwerp (Deckers et al., 2019).

Occurrence

According to De Meuter & Laga (1976), the Edegem Member crops out at the southern border of the province of Antwerp and is recorded in cores more to the north (the Antwerp Campine area).

Regional correlations

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Age

The member holds the mid-Burdigalian NN3 Zone of Martini (1971) (Martini & Müller (1973), while Verbeek et al. (1988) propose a correlation with the Discoaster druggii NN2 Zone and the Sphenolithus belemnoides NN3 Zone, indicative for an Aquitanian to Burdigalian age. Hooyberghs & Moorkens (1988) propose a correlation with the planktonic foraminifera NPF11 Globigerinoides primordius Zone defined by Spiegler et al. (1988), indicative of an Aquitanian age. According to Doppert et al. (1979), the benthic foraminifers from the Edegem Member point to the lower Miocene BFN1 Trifarina gracilis rugulosa – Elphidium ungeri Zone. Louwye et al. (2000) propose a late Aquitanian – early Burdigalian age (Cordosphaeridium cantharellus biozone) based on dinoflagellate cyst analysis (Figure 0-2). Radiometric dating was carried out on glauconite grains from the Edegem Member (Odin & Kreuzer,

1988). The glauconites in the Edegem Member are considered reworked and provide an erroneous age (K-Ar ages between 21.3 Ma and 26.6 Ma, i.e. an Aquitanian – Chattian age).

Dataset

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

Subset of the lower and middle Miocene: <https://www.dov.vlaanderen.be/data/opdracht/2020-022192>

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Annexes

Edegem Member (Berchem Formation)

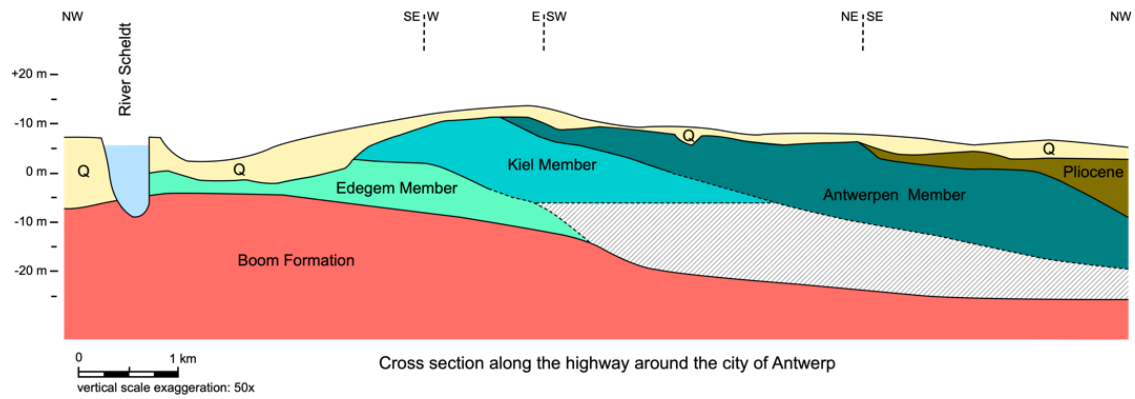


Figure 0-1. Geological cross-section of the Berchem Formation in the type area. See Louwye et al. (2020) for more information.

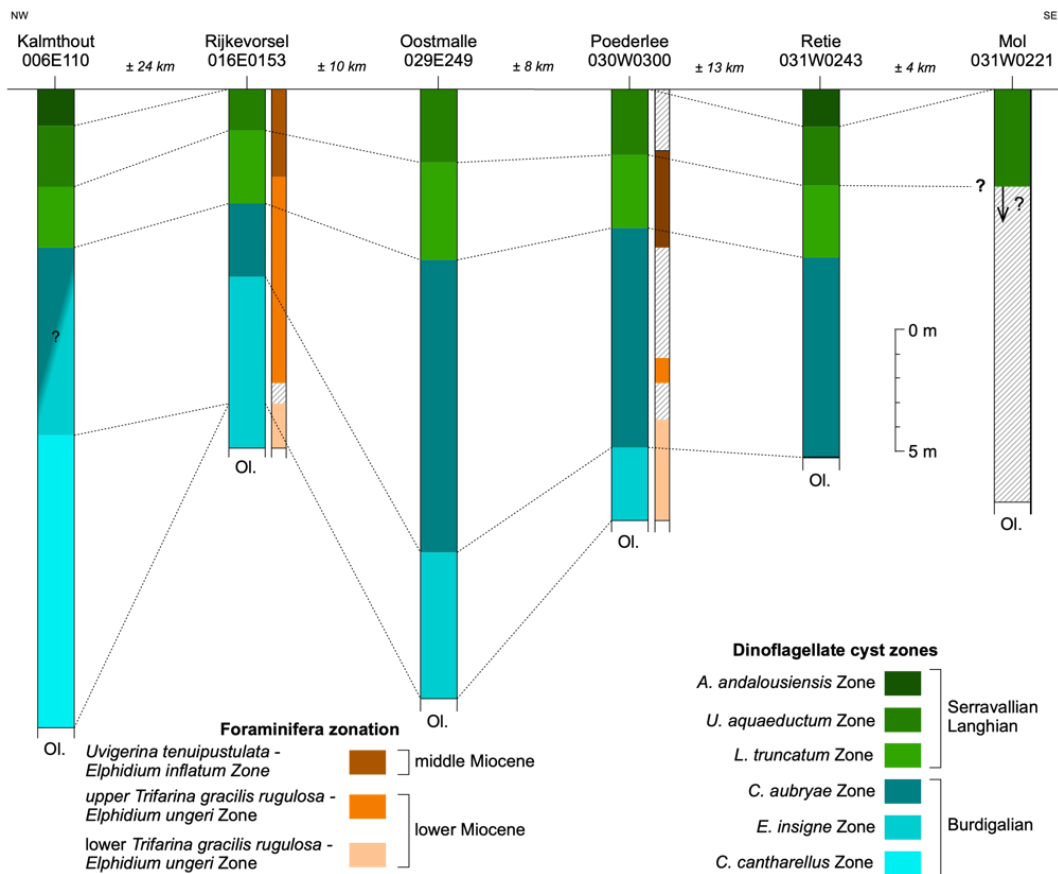


Figure 0-2. Distribution of lower and middle Miocene deposits in the Antwerp Campine area. See Louwye et al. (2020) for more information