

Berchem Formation

Unit name: Berchem

Hierarchical unit name: /

Type: Formation

Code: Bc

Author(s):

- Compiled by Louwye Stephen, Deckers Jef.
- Modified after De Meuter & Laga (1976)

Alternative names: /

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

Date: 01/05/2022

How to refer: Louwye, S. & Deckers, J., 2023. The Berchem Formation, 01/09/2023. National Commission for Stratigraphy Belgium. <http://ncs.naturalsciences.be/lithostratigraphy/Berchem-Formation>

Characterizing description

The Berchem Formation was redescribed in detail by Louwye et al. (2020). The Berchem Formation is a green to blackish, fine to medium-grained unit, often very glauconitic and with a minor clay content (Louwye et al., 2020). Smectite is the dominant clay mineral (Adriaens, 2015). The mode of the grain size within the formation varies between c. 130 μm and c. 330 μm (Verhaegen, 2020). The Berchem Formation holds a significant amount of epidote, amphiboles and garnet, making up on average more than 50% of the transparent heavy minerals (Verhaegen, 2020). Shells are abundantly present, dispersed or concentrated in massive layers. Parts of the formation, such as the Kiel Member, are locally decalcified. The Berchem Formation is on wireline log data typified by high gamma ray and moderate resistivity values (Deckers et al., 2019). A distinct gravel bed of dark, rounded flint pebbles is present at the base.

The Berchem Formation holds four members: the Edegem Member, Kiel Member, Antwerpen Member and Zonderschot Member.

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

The type locality is Berchem, as defined by De Meuter & Laga, 1976. No single type section for the entire formation is available. The temporary outcrops for the construction of the highway around the city of Antwerp can be considered as a composite type section. The Edegem Member, Kiel Member and Antwerpen Member occur in the type locality in following temporary outcrops of the composite type section:

Antwerpen – Zuidstation III AR, I AR, IV AR, V AR, 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)

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

Antwerpen – Borbeeksepoort II BP (De Meuter et al., 1976)

Antwerpen – Kievitstraat II, V, VI AK (De Meuter et al., 1976), revised by Everaert et al. (2020)

Berchem – Grote Steenweg AG (De Meuter et al., 1976)

Borgerhout – Stenen Brug I SB (De Meuter et al., 1976), revised by Deckers and Everaert (2022)

Borgerhout – Rivierenhof XI BR (De Meuter et al., 1976)_correlated to CPT [GEO-07/154-S11](#) by Deckers and Everaert (2022)

Posthofbrug (Louwye et al., 2010) correlated to CPT [GEO-68/101-SVII](#) by Deckers and Everaert (2022)

Posthofbrug 2-3 (Hoedemakers & Dufraing, 2018)

Tweelingenstraat (Everaert et al., 2020)

Argenta (Everaert et al., 2020)

Post X (Everaert et al., 2020)

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

Wilrijk – Revalidatiecentrum (Hoedemakers & Dufraing, 2021)

The type section of the Zonderschot Member is located about 30 km southeast of Antwerp and was described by Huyghebaert & Nolf (1979).

Description upper boundary

The formation is unconformably covered by the Diest Formation (upper Miocene), the Pliocene Kattendijk and/or Lillo formations, reworked Pliocene deposits or the Quaternary (De Meuter et al., 1976).

Description lower boundary

The formation rests unconformably on the lower Oligocene Boom Formation in the Antwerp area and the upper Oligocene Voort Formation in the Campine area. The formation thins towards the south.

Thickness

The Berchem Formation has a thickness of about 30 m in the Antwerp area to over 100 m in the east in the Campine area (Louwye et al., 2020).

Occurrence

The Berchem Formation occurs in northern Belgium between Antwerp in the west and Lommel in the east (see Figure 0-1 and Figure 0-2 in annex).

Regional correlations

The Berchem Formation can largely be correlated with the Bolderberg Formation which occurs in the eastern part of northern Belgium.

Age

Dinoflagellate cyst analysis positions the Berchem Formation in the type area between the mid-Burdigalian and late Serravallian (Louwey et al., 2020). Deposits of the Berchem Formation of Aquitanian age, based on dinoflagellate analysis, have been recorded at the base of the Weelde and Mol boreholes (Munsterman & Deckers, 2020).

Dataset

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

Name	GSB name	DOV name	GSB Collections URL	DOV URL
CPT near Borgerhout – Rivierenhof XI BR outcrop		GEO-07/154-S11		https://www.dov.vlaanderen.be/data/sondering/2007-051813
CPT near Posthofbrug outcrop		GEO-68/101-SVII		https://www.dov.vlaanderen.be/data/sondering/1968-038916

References

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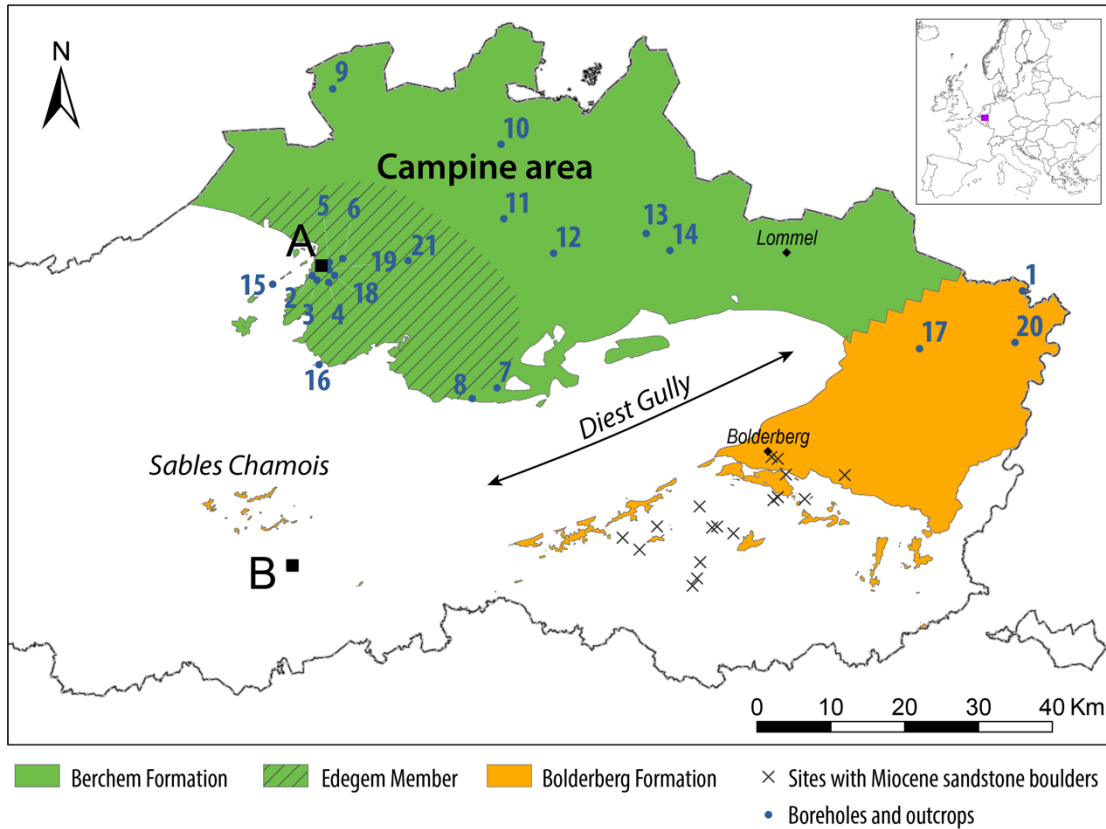
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Annexes



Name	Code BGD	Code DOV	Nr
Molenbeersel	049W0225	kb18d49w-B225	1
Antwerp - Montignystraat	028W0394	kb15d28w-B448	2
Antwerp - Van Rijwijcklaan	028W0395	kb15d28w-B449	3
Berchem - Grote Steenweg	028W0397	kb15d28w-B451	4
Antwerp - Kievitstraat outcrop	028W0399	kb15d28w-B453	5
Borgerhout - Rivierenhof	028E0499	kb15d28e-B580	6
Zonderschoot		TO-19720101	7
Heist-op-den-Berg		kb24d59e-B180	8
Kalmthout	006E0110	kb7d6e-B239	9
Rijkevorsel	016E0153	kb8d16e-B36	10

Name	Code BGD	Code DOV	Nr
Oostmalle	029E0249	kb16d29e-B276	11
Poederlee	030W0300	kb16d30w-B315	12
Retie	031W0243	kb17d31w-B228	13
Mol	031W0221	kb17d31w-B212	14
Burcht outcrop		TO-20050101A	15
Terhagen outcrop		TO-20050101B	16
Wijshagen	048W0180	kb18d48w-B181	17
Berchem		TO-20150701	18
Antwerp		TO-20190417	19
Maaseik	049W0220	kb18d49w-B220	20
Oelegem	029W0378	kb16d29w-B401	21

Figure 0-1: Geographical distribution of the Berchem Formation in northern Belgium with locations of research boreholes and outcrops (Louwye et al., 2020).

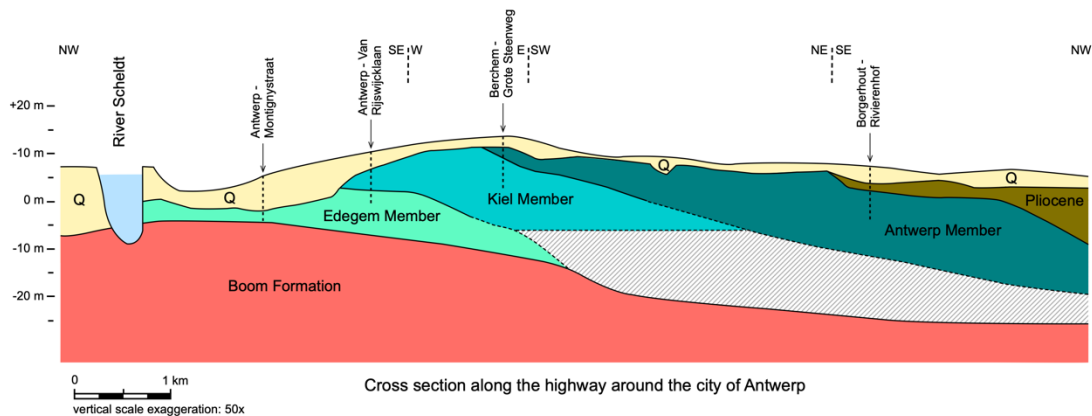


Figure 0-2: Geological cross-section of the Berchem Formation in the type area. See Louwye et al. (2020) for more information.