

Summarised description

Unit name

Fépin Formation

Code

FEP

Status

Formal Formation

Parent unit

none

Child units

Linchamps Conglomerate Bed, Haybes Member, Roche à l'Appel Member

Characteristic description

Conglomerate and coarse-grained sandstone, forming metre-thicks lenticular beds with erosive base, passing upwards to grey and bluish finer-grained sandstone.

Age

Upper Pridoli to lowermost Lochkhovian

Thickness

20 to 80 metres

Area of occurrence

Margins of the Caledonian inliers of Rocroi, Serpont and Givonne

Type locality

The sections situated near Fépin and Haybes (France) are discontinuous but illustrate the facies variations (Meilliez, 1984, 1989). Godefroid et al. (1982) defined the stratotype of the Fépin Formation in the Lahonry quarry, south of Couvin.

Alternative names

Poudingue de Fépin

Authors

Dumont (1836)

Modified after

Denayer, J. & Mottequin, B., 2024. Lower Devonian lithostratigraphy of Belgium. *Geologica Belgica*, 27/3-4, 115–154.

Date

23/09/2025

Cite as

Denayer, J. & Mottequin, B., 2025. The Fépin Formation, 23/09/2025. National Commission for Stratigraphy Belgium. <https://ncs.naturalsciences.be/lithostratigraphy/Fepin-Formation>

Full description

Unit name

Fépin Formation

Code

FEP

Status

Formal Formation

Parent unit

none

Child units

Linchamps Conglomerate Bed, Haybes Member, Roche à l'Appel Member

Origin of the name

After the locality Roches à Fépin, on the eastern flank of the Meuse River valley at Haybes (France).

Alternative names

Poudingue de Fépin

Authors

Dumont (1836, p. 334): *Poudingue de Fépin*

Modified after

Denayer, J. & Mottequin, B., 2024. Lower Devonian lithostratigraphy of Belgium. *Geologica Belgica*, 27/3-4, 115–154.

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Characteristic description

The Fépin Formation groups two units of varying thickness: the basal conglomerate—*poudingues de Fepin* and *poudingue pisaire de Fepin* (Dumont, 1848, p. 88, p. 194), *poudingue de Linchamps* (Gosselet, 1888, p. 207), *poudingue de Tournavaux* (Gosselet, 1888, p. 212), or *Poudingue de Muno* (Lecompte, 1967, pl. 5)—and a sandstone unit, known in the literature as *arkose d'Haybes* (Gosselet, 1884, p. 194) and *arkose de Haybes* (Renard, 1884, p. 119). The *arkose de Macquenoise* (Picavet et al., 2017, p. 270) (also named the Macquenoise sandstone in Picavet et al., 2018, p. 29) denotes a particular facies of the second unit.

Around the Rocroi Inlier, the Formation begins with the **Linchamps Conglomerate Bed**, a poorly sorted conglomerate that consists of an argillaceous sandstone matrix enclosing boulders and pebbles of dark quartzitic sandstone and quartz. This basal unit underlines the very irregular surface of the Caledonian unconformity. The conglomerate displays finning-upwards sequences with erosive base. Coarse-grained sandstone, with occasional planar or oblique stratifications, forms metre-thick lenses within the conglomerate. Around the Givonne Inlier, the conglomerate displays less matrix and the boulders are often bound by a siliceous cement.

Upwards, lenses and beds of fine-grained sandstone increase in frequency, passing to the **Haybes Member**. The sandstone is greyish or blueish, contains up to 6–10% of feldspar and alternates with dark or greenish sandy shale. The matrix of the coarser-grained facies is often kaolinitic. Shale and sandstone yield rare and poorly preserved fossils (e.g. bivalves, brachiopods). Rare impure limestone forms thin beds locally. Around the Givonne Massif, the upper part of the Formation corresponds to the **Roche à l'Appel Member** (*Membre de la Roche à l'Appel* in Belanger & Ghysel, 2017, p. 14), a lenticular unit of dark green quartzitic sandstone with oblique stratifications alternating with argillaceous micaceous sandstone and dark grey shale.

Area of occurrence

The Fépin Formation covers the Cambrian and Ordovician rocks of the Rocroi, Givonne and Serpont Inliers. It was mapped along the south-western digitation of the Stavelot–Venn Inlier but the facies corresponds to the Waimes Member and, therefore, should be included in the Fooz Formation rather than in the Fépin Formation between Dochamps and Manhay and near Harre.

Type locality

The sections situated near Fépin and Haybes (France) are discontinuous but illustrate the facies variations (Meilliez, 1984, 1989). Godefroid et al. (1982) defined the stratotype of the Fépin Formation in the Lahonry quarry, south of Couvin (Meilliez & Blicq, 1994). The Linchamps Conglomerate is defined in the disused quarry at Muno (Godefroid & Cravatte, 1999) whereas the Roche à l'Appel Member is defined in the eponymous locality (Belanger & Ghysel, 2017).

Age

The Fépin Formation, which is younger northwards, yielded a poorly preserved miospore assemblage indicative of the R Zone in Lahonry and of the N Zone in Willerzie (Steenmans, 1982a, b, 1989), i.e. uppermost Pridoli to lowermost Lochkovian.

Thickness

The conglomeratic part is very variable in thickness, even over very short distances, and strongly depends on the palaeo-topography of the Caledonian basement. Meilliez & Lacquement (2006) described very strong variations of facies and thickness in the Fépin locality. Similar variations have been documented in Lahonry (Godefroid et al., 1982) and elsewhere. It varies from a few metres up to 70 m in Fépin (Meilliez, 1984), but usually c. 20 m in average. The Fépin Formation varies from 20 m on the southern edge of the Rocroi Inlier, to 50 m on its northern edge and on the Givonne Inlier (Belanger & Ghysel, 2017), to 30 m on the south-western edge of the Stavelot–Venn Inlier (Dejonghe, 2008; Dejonghe & Hance, 2008). It is missing around the Serpont Inlier. The Roche à l'Appel Member is 0–80 m thick (Belanger & Ghysel, 2017). The Haybes Member varies in thickness from 0 m to a few tens of metres (Meilliez, 1984).

Lower boundary

The base of the conglomerate resting unconformably upon the Cambrian-Ordovician rocks of the inliers.

Upper boundary

First bed of the dark shale and siltstone of the overlying Mondrepuis Formation.

Regional correlations

The Fépin Formations passes, northwards to the lower part of the Fooz Formation : the Linchamps Conglomerate passes to the Quareux Conglomerate whereas the Haybes Member passes to the lighter-coloured Waimes Member.

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