

1867; VACEK, 1907); Kramenzelkalk (HERITSCH, 1917b), Manticoceraskalk (HERITSCH, 1927c), Kalkschiefer der Rannachwiese (CLAR, 1933), Oberdevonische Flaserkalke (KUNTSCHNIG, 1937), Bunte Flaserkalke (SCHÄFER, 1937), oberer Clymenienkalk (WAAGEN, 1937).

Lithology: Monotonous, well-bedded flaser limestones of variable colors.

Fossils: Conodonts and rare macrofossils (goniatites and clymeniids; solitary rugose corals).

Origin, facies: Depositions of a deeper shelf margin.

Chronostratigraphic age: Frasnian–Famennian (also may contain uppermost Givetian).

Biostratigraphy: *asymmetricus* to *praesulcata* conodont zones.

Thickness: Approximately 70 m.

Lithostratigraphically higher rank unit: Rannach Group.

Lithostratigraphic subdivision: FLÜGEL (2000) affiliates the “Flaserkalke des Höllerer-Kogel” of EBNER et al. (1979, 1980a) as a member to the Steinberg Formation. The Höllerkogel member comprises 20 to 30 m thick thin-bedded, yellow micritic flaser limestones that are developed at the base of the formation.

Underlying unit(s): Kollerkogel Formation, Hochlantsch Formation (conformable contact).

Overlying unit(s): Sanzenkogel Formation.

Lateral unit(s): Hochlantsch Formation.

Geographic distribution: Styria, highland in the surroundings of Graz; ÖK50-BMN, map sheets 134 Passail, 163 Voitsberg, and 164 Graz.

Remarks: -

Complementary references: EBNER (1978a), SURENIAN (1978), EBNER & HUBMANN (2012).

Sanzenkogel-Formation / Sanzenkogel Formation

BERNHARD HUBMANN

Validity: Valid; first description by NÖSSING (1975: Sanzenkogel-Schichten); formalized by FLÜGEL (2000: p. 29; Sanzenkogel-Formation).

Type area: ÖK50-UTM, map sheet 4228 Voitsberg (ÖK50-BMN, map sheet 163 Voitsberg).

Type section: At Sanzenkogel west of village Steinberg, 15 km west of Graz (ÖK50-BMN, map sheet 163 Voitsberg) (N 47°04'07" / E 15°19'18"); the type section is now within the abandoned quarry “Trolp” (NÖSSING, 1975).

Reference section(s): Eichkogel at Rein (NÖSSING et al., 1977) (N 47°07'17" / E 15°16'22") and section “Hartbauer” (N 47°07'22" / E 15°21'58") southeast of Gratkorn (EBNER et al., 1980b).

Derivation of name: After the hill Sanzenkogel 15 km west of Graz.

Synonyms: Partly: Clymenienkalk (PETERS, 1867; VACEK, 1907); Kramenzelkalk (HERITSCH, 1917b); Manticoceraskalk (HERITSCH, 1927c); Kalkschiefer der Rannachwiese (CLAR, 1933); Oberdevonische Flaserkalke (KUNTSCHNIG, 1937); Bunte Flaserkalke (SCHÄFER, 1937); oberer Clymenienkalk (WAAGEN, 1937); *Gnathodus*-Kalk (FLÜGEL & ZIEGLER, 1957); Steinberg-Kalk (H. FLÜGEL, 1975).

Lithology: Monotonous, well-bedded flaser limestones of variable colors, mostly greyish; lydites.

Fossils: Conodonts.

Origin, facies: Depositions of a deeper shelf margin.

Chronostratigraphic age: Tournaisian–Serpukhovian.

Biostratigraphy: *sulcata* to *bilineatus bollandensis* conodont zones.

Thickness: Up to 35 m.

Lithostratigraphically higher rank unit: Forstkogel Group.

Lithostratigraphic subdivision: Within the Sanzenkogel Formation FLÜGEL (2000) distinguished two beds, Hart Bed and Trolp Bed.

Hart Bed: Well-bedded grey-yellowish lydites; variable in thickness (half a meter to 2 meters).

Trolp Bed: Dark grey marly limestones with phosphoritic nodules (diameters up to 5 cm); about 20 cm in thickness.

Underlying unit(s): Steinberg Formation.

Overlying unit(s): Höchkogel Formation.

Lateral unit(s): -

Geographic distribution: Styria, highland in the surroundings of Graz; ÖK50-BMN, map sheets 163 Voitsberg, 164 Graz.

Remarks: Distinguishing lithological features between rocks of the Sanzenkogel Formation and the underlying Steinberg Formation are rather meagre. Furthermore, the subdivision of a “lower Sanzenkogel Formation” with its type section at Sanzenkogel (abandoned quarry “Trolp”; see NÖSSING, 1975) and the “upper Sanzenkogel Formation” (FLÜGEL, 2000) with its type section at the roadcut “Hartbauer” (see EBNER, 1978a) is only a biostratigraphic not a lithostratigraphic one.

Complementary references: BOŠIČ (1998), EBNER & HUBMANN (2012).

Dornerkogel-Formation / Dornerkogel Formation

BERNHARD HUBMANN

Validity: Valid; first description by SY (1957: “Sandsteine des Dorner-Kogels”); formalization by FLÜGEL (2000: p. 13; Dornerkogel-Formation).

Type area: ÖK50-UTM, map sheet 4223 Weiz (ÖK50-BMN, map sheet 134 Passail).

Type section: No type section defined, but FLÜGEL (2000) proposed a type region at Dornerkogel, a mountain near St. Erhard (Breitenau), ÖK50-BMN, map sheet 134 Passail (N 47°21'11" / E 15°22'58").

Reference section(s): -

Derivation of name: After the mountain Dornerkogel (1,336 m) north St. Erhard (Breitenau), approx. 60 km north of Graz.

Synonyms: Sandsteine des Dorner-Kogels (SY, 1957); Dornerkogel-Folge (H. FLÜGEL, 1975); Dornerkogelfolge (FLÜGEL & NEUBAUER, 1984); partly: Karbon der Breitenau (FLÜGEL, 1953a).

Lithology: Greenish-grey arkoses, greywackes and sandstones.

Fossils: Undeterminable fragmental plant remains.

Origin, facies: Shallow marine environment.

Austrian Stratigraphic Chart 2004 - Paleozoic

(sedimentary successions)

Austrian Stratigraphic Commission



ERA	SYSTEM / PERIOD / SERIES / EPOCH	STAGE / AGE	DURATION Ma	Global Classification					
				ERATHM / ERA	SYSTEM / PERIOD / SERIES / EPOCH				
PALEOZOIC	PERMIAN	CHANGHSINGIAN / Dorashanian	251	MID PERMIAN U. PERMIAN / GUADALUPIAN / LOPINGIAN	48				
		WUCHIAPINGIAN / Dufallian	255						
		CAPITANIAN	260						
		WORDIAN	265						
		ROADIAN	270						
		PERMIAN	KUNGURIAN			275	LOWER PERMIAN / CISURALIAN		
			ARTINSKIAN			280			
			SAKMARIAN			285			
			ASSELIAN			290			
		PERMIAN	TRIAS			GZHELIAN	295	U. CARBONIFEROUS / PENNSYLVANIAN	48
KASIMOVIAN	300								
MOSKOVIAN	305								
BASHKIRIAN	310								
PERMIAN	SERPUKHOVIAN			315	LOWER CARBONIFEROUS / MISSISSIPPIAN				
	VISEAN			320					
	TOURNAISIAN			325					
PERMIAN	DEVONIAN			FAMENNIAN	350	UPPER DEVONIAN	60.2		
				FRASNIAN	355				
				GIVETIAN	360				
		EIFELIAN	365						
		EMSIAN	370						
		DEVONIAN	LOCHKOVIAN	375	LOWER DEVONIAN				
			PRAGIAN	380					
			LOCHKOVIAN	385					
		PERMIAN	DEVONIAN	LUDFORDIAN / GORSTIAN	390			MIDDLE DEVONIAN	60.2
				HOMERIAN / SHEINWOOD	395				
TELYCHIAN	400								
AERONIAN	405								
RHUDDANIAN	410								
DEVONIAN	HIRNANTIAN			415	UPPER ORDOVICIAN				
	ORDOVICIAN			420					
	ORDOVICIAN			425					
PERMIAN	DEVONIAN			WEN-LOCK / LOW	430	LOWER DEVONIAN	60.2		
				WEN-LOCK / LOW	435				
		WEN-LOCK / LOW	440						
		WEN-LOCK / LOW	445						
		WEN-LOCK / LOW	450						
		DEVONIAN	WEN-LOCK / LOW	455	MIDDLE ORDOVICIAN				
			WEN-LOCK / LOW	460					
			WEN-LOCK / LOW	465					
		PERMIAN	DEVONIAN	WEN-LOCK / LOW	470			UPPER ORDOVICIAN	60.2
				WEN-LOCK / LOW	475				
WEN-LOCK / LOW	480								
WEN-LOCK / LOW	485								
WEN-LOCK / LOW	490								
DEVONIAN	WEN-LOCK / LOW			495	MIDDLE ORDOVICIAN				
	WEN-LOCK / LOW			500					
	WEN-LOCK / LOW			505					
PERMIAN	DEVONIAN			WEN-LOCK / LOW	510	UPPER ORDOVICIAN	60.2		
				WEN-LOCK / LOW	515				
		WEN-LOCK / LOW	520						
		WEN-LOCK / LOW	525						
		WEN-LOCK / LOW	530						
		DEVONIAN	WEN-LOCK / LOW	535	MIDDLE ORDOVICIAN				
			WEN-LOCK / LOW	540					
			WEN-LOCK / LOW	545					



- Legend**
- pelagic, offshore, siliciclastic
 - pelagic, nearshore, calcareous
 - shallow marin, neritic
 - terrestrial-continental, coarse clastic
 - terrestrial-continental, fine clastic
 - evaporite (chloride, sulphate)
 - rhyolite, dacite
 - (basaltic) andesite, trachyandesite
 - basalt
 - phyllite
 - mixed-facies (in corresponding colors)
 - coal (may include several seams)
 - ? position/age doubtful/controversial
 - | equal units
 - \ older unit left \ younger unit right
 - hiatus
 - unconformity
 - GSSP
 - Fm. Formation
 - Ls. Limestone

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Cutout and English adaptation of the "Die Stratigraphische Tabelle von Österreich 2004": Geological Survey of Austria

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