

APPENDIX

Original archival core description of evaporite-bearing intervals from boreholes penetrating the sedimentary fill of the Pogórska Wola palaeovalley and from selected ones drilled on the plateau (borehole locations are given in Figure 13)

Borehole name and tectonic context of drilled evaporites	MD [m] (measured depth)	Core description
Boreholes drilled into evaporite succession inside the palaeovalley		
Jaśniny-7 In zone of deformation at the front of the Skole Nappe flysch wedge	2191.0–2197.0 core recovery: 6 m	Boxes 1–5: salt, dark grey coloured in Box 1; in Box 2 – brighter in colour; in Box 3 imprinted with tiny fragments of anhydrite; in Boxes 4 and 5 salt is interlayered with claystone, sandstone and anhydrite and contains up to few cm thick intercalations of shale. Box 6: 0–80 cm – sandy mudstone, fragile, grey coloured 80–100 cm – shale, partly liquefied (mud)
	2203.0–2208.0 core recovery: 4 m	Boxes 1–4: salt, dark grey, in Boxes 3 and 4 with imprinted fragments of anhydrite and shale of the same colour
Jaśniny-12 In zone of deformation at the front of the Skole Nappe flysch wedge	2092.0–2096.0 core recovery: 0.5 m	shale, dark grey, almost black, with intercalations of salt and anhydrite; dipping at 30°
Jaśniny-13 At 1374–1380 m cored is the upper evaporite package at the base of a major backthrust of Machów Fm. onto the Skole Nappe flysch. The highly deformed lower evaporite package, cored from 2048 to 2193 m, occurs below the Skole Nappe	1374.0–1380.0 core recovery: 5.5 m	Boxes 1–6: claystone and mudstone, dark grey, almost black, compact, brittlely desintegrating; intercalations and veins of dark grey anhydrite, impregnated with clayey material; at 270–280 cm, an interlayer of greyish muddy sandstone; the rock is tectonically disrupted, core broken into pieces, does not react to HCl ⁻
	2042.0–2048.0 core recovery: 0.8 m	Box 1: 0–30 cm: sandstone, light grey coloured, fine-grained with salt laminae and single crystals 30–80 cm: anhydrite, white, firm, and grey coloured crystalline salt
	2048.0–2054.0 core recovery: 0.3 m	sandstone, light grey with white anhydrite laminae and salt crystals
	2054.0–2060.0 core recovery: 3.7 m	Boxes 1–4: 0–20 cm: clayey shale, dark grey, compact, slickensided 20–100 cm: crystalline salt, grey coloured; salt grains crystallised on the perimeter of core 100–370 cm: clayey shale with insets, overgrowths and laminae of anhydrite and salt; rock is disturbed
	2060.0–2065.0 core recovery: 0.7 m	mudstone, light grey, firm, compact, dips up to 80°, containing crystals of grey salt and white anhydrite; core contains a pebble of anhydrite, 2 cm in diameter
	2085.0–2087.0 core recovery: 0.8 m	mudstone and shale, firm, locally streaky and laminated (laminae 0.1–1cm thick) with white anhydrite; core contains two white anhydrite pebbles, 2 and 3 cm in size
	2087.0–2091.0 core recovery: 4.0 m	Boxes 1–4: mudstone and shale, dark grey, firm, compact, with distorted bedding; white anhydrite veins and intercalations up to 1 cm in thickness; locally slickensided; dips up to 90°
	2091.0–2097.0 core recovery: 1.0 m	mudstone and shale, dark grey, compact, with veins of white anhydrite, locally slickensided; bedding distorted during deposition; dips up to 80°
	2162.0–2168.0 core recovery: 4.3 m	Boxes 1–5: 0–130 cm: mudstone, dark grey, firm, compact, with 0.5 cm intercalation of white anhydrite 130–410 cm: crystalline salt, grey and dark grey, with infrequent anhydrite intercalations 410–430 cm: dark grey claystone, compact, fragile; dips up to 30°
2189.0–2193.0 core recovery: 3.0 m	Boxes 1–3: salt, grey with infrequent pockets of white anhydrite	
Machowa-3 In zone of deformation at the front of the Skole Nappe flysch wedge	2100.0–2113.0 core recovery: 5 m	Boxes 1–3: mudstone, dark grey and almost black varieties, firm, impregnated with anhydrite and local anhydrite veins; mudstone to silty sandstone with thin intercalations of dirty greenish calcareous sandstone; bedding horizontal Boxes 4–5: mudstone, dark brown, slightly calcareous, relatively firm, with transitions to olive-green, calcareous, soft mudstone, spherically splitting, slickensided on bedding fissility planes; bedding horizontal
	2113.0–2122.0 core recovery: 9 m	Boxes 1–9: sparitic limestone, organodetritic, light grey in colour, cavernous, saccharoidal, sulphur mineralisation in some caverns; locally of conglomerate character with clasts of anhydrite, dark brown mudstones and claystones and lighter coloured limestones, in grey matrix of sparitic limestone, organodetritic with corals; bedding horizontal

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Borehole	MD [m] (measured depth)	Core description	
Boreholes drilled into evaporite succession inside the palaeovalley			
Machowa-5 In zone of deformation at the front of the Skole Nappe flysch wedge	1760.0–1764.0 core recovery: 3 m	Boxes 1–3: Shale, dark grey and grey, with admixture of psammitic fraction and intercalations of anhydrite and salt; intense folding due to halokinesis; dips up to 70°	
	1868.0–1875.0	rock salt, grey, with intercalations of claystone and anhydrite	
	2136.0–2202.0	claystone/shale, grey and brownish grey, with fragments of anhydrite and white rock salt	
Machowa-6 In zone of deformation at the front of the Skole Nappe flysch wedge	2377.0–2382.0 core recovery: 1.3 m	crystalline salt, white, with admixture of clayey material	
Podlesie-2 The upper evaporite package, cored between 1410 and 1416 m, occurs at the base of a backthrust of Machów Fm. onto the Skole Nappe flysch. The lower evaporite package occurs below the Skole Nappe	1410.0–1416.0 core recovery: 2.5 m	shale, dark grey, claystone and claystones intergrown with grey sandstones, veins of anhydrite and, possibly, clayey salt	
	2217.0–2220.5 core recovery: 2.5 m	claystone and dark grey shale, firm, with irregular anhydrite intercalations and anhydrite laminae; thin interlayers of clayey salt	
	2303.0–2304.1 core recovery: 0.3 m	shale, dark grey, firm, compact, with intergrowths of anhydrite and salt intercalations	
Pogórska Wola-3 (description after Połtowicz, 1963) In zone of deformation at the front of the Skole Nappe flysch wedge	1672.4–1678.0	0.00–0.15 m: rock salt, grey coloured, contaminated with clayey material 0.15–0.65 m: breccia of anhydrite, mudstone and sandstone, cemented with salt 0.65–0.80 m: salt, grey coloured, contaminated with clay 0.80–0.90 m: anhydrite 0.90–1.00 m: breccia of anhydrite and mudstone cemented with salt 1.00–1.05 m: rock salt, grey coloured 1.05–1.30 m: anhydrite with salty mudstone intercalations 1.30–1.70 m: rock salt with anhydrite 1.70–1.90 m: clayey salt, dipping at 26° 1.90–2.00 m: breccia of mudstone and sandstone cemented with salt 2.00–2.30 m: crystalline anhydrite, grey-brown, thinly laminated, dipping at 69°	
		1678.0–1685.1	0.00–1.00 m: breccia of anhydrite and sandstone cemented with salt 1.00–2.00 m: mudstone with intercalations of anhydrite alternating with salt
		1685.1–1691.1	sparse fragments of mudstone, sandstone and anhydrite – probably remains of breccia after leaching away of salt
		1691.1–1698.8	0.00–0.50 m: breccia of anhydrite, gypsum, mudstone and sandstone, cemented with salt 0.50–0.80 m: fragments of mudstone and sandstone – probably remains of breccia after leaching away of salt
		1712.5–1718.6	0.00–0.90 m: breccia of anhydrite, gypsum, mudstone and sandstone, cemented with salt, dipping at ca. 80° 0.90–1.00 m: mudstone with wavy bedding, dipping at 30–40°
		1718.6–1721.6	0.00–3.50 m: mudstone, dark grey, with intercalations of gypsum and salt; numerous slickensides and strong tectonic distortions; dips of 50–70°
		1729.1–1736.1	0.00–6.00 m: mudstone, dark grey, locally sandy, with intercalations of sandstone, gypsum and anhydrite; frequent salt efflorescences; core strongly fractured and slickensided; dip: 35–55°
		1736.1–1753.0	0.00–9.60 m: mudstone, dark grey, locally impregnated with gypsum; intercalations of sandstone with several cm thick anhydrite and gypsum; rock strongly slickensided; with dips of 30–70°
		1753.0–1770.8	0.00–7.60 m: mudstone, dark grey, with intercalations of sand and thin interlayers of anhydrite, gypsum and rock salt; strongly slickensided, dipping at 55–70°
		1789.3–1800.7	0.00–7.90 m: mudstone, dark grey, with intercalations of sandstone and numerous salt efflorescences and slickensides; dip: 45–55°
		1800.7–1803.7	0.00–1.00 m: mudstone, dark grey, impregnated with gypsum, dipping at 40–60°
		1803.7–1812.4	0.00–5.4 m: mudstone, dark grey, with thin interlayers of laminated anhydrite, dipping at 7–20°
		1812.4–1816.8	0.00–3.00 m: mudstone, dark grey, locally gypsum-mudstone breccia, dipping at ca. 50°
1816.8–1820.0	0.00–2.40 m: clayey shale and mudstone, dark grey with cm thick intercalations of fine-grained sandstone, dipping at 16–45° 2.40–3.00 m: grey sandstone, fine-grained, calcareous		

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Borehole	MD [m] (measured depth)	Core description
Boreholes drilled into evaporite succession inside the palaeovalley		
Pogórska Wola-8 In tectonically deformed lower evaporite package beneath the Skole Nappe	2 353.2–2359.2 core recovery: 4 m	Box 1: 0–15 cm: mudstone, grey coloured 15–30 cm: mudstone, grey coloured, very fine-grained, very hard, reacts to HCl, core with taste of salt 30–50 cm: sandstone, grey coloured, crumbly, fine-grained, reacts to HCl, dipping at ca. 35°, split with vertical, 3 cm thick fissure filled with grey-yellowish salt 50–70 cm: sandstone, grey coloured, fine-grained, firm, hard, HCl-non reactive, with taste of salt 70–100 cm: mudstone, grey coloured, soft, crumbly, dipping at ca. 30° Box 2: 0–50 cm: shale, grey coloured, soft, crumbly, sparsely sandy, calcareous, with insets of salt grains 50–100 cm: sandstone, grey coloured, fine-grained, interlayered with yellowish salt Box 3: 0–50 cm: sandstone, HCl-highly reactive, dipping at 45–50°, very fine-grained, with taste of salt, hard 50–100 cm: mudstone/sandstone, reacts to HCl, grey coloured, soft, non-cohesive, crumbly Box 4: sandstone, fine-grained, relatively hard, with carbonate cement, dipping at ca. 30°
	2001.2–2007.7	Box 1: 0–20 cm: anhydrite, dark grey, with admixture of muddy material 20–90 cm: anhydrite, dark grey, finely streaky with dark grey clayey material, reacts to HCl, dipping at 51° 90–100 cm: clayey shale, impregnated with anhydrite, dipping at 47° Box 2: 0–30 cm: anhydrite, with fine and abundant streaks of dark grey clayey material 30–65 cm: shale, dark grey, reacts to HCl++, with few fine streaks of anhydritic material, dipping at 50° 65–75 cm: anhydrite, dark grey, with sparse streaks of dark grey shale, dipping at 55° 75–100 cm: clayey shale, dark grey in colour, reacts to HCl++, with sparse fine streaks of anhydrite Box 3: 0–60 cm: clayey shale, dark grey, reacts to HCl++; at 32–37 cm an irregular intercalation of gypsum 60–75 cm: fine breccia, with secondary bedding defined by anhydrite- and gypsum, dipping at 48° 75–100 cm: shale, dark grey, reacts to HCl+++ Box 4: 0–22 cm: dark grey shale, reacts to HCl++ 22–55 cm: anhydrite and gypsum breccia with secondary bedding, finely streaked, dipping at 46–53° 55–65 cm: halite with fragments of dark grey shale and marl 65–100 cm: clayey anhydrite, alternating with anhydrite and dark grey shale; dip of 65–70° Box 5: 0–15 cm: halite with small admixture of dark grey shale and marl clasts 15–42 cm: breccia of marl, anhydrite, gypsum and halite 42–75 cm: halite with marl, gypsum and anhydrite clasts 75–100 cm: anhydrite, with sparse streaks of halite, dipping at: 48, 52, 75°
Pogórska Wola-14 In zone of deformation at the front of the Skole Nappe flysch wedge	2007.7–2013.2	Box 1: 0–15 cm: anhydrite, dark grey, with fine streaks of dark grey shale, dipping at 80° 15–20 cm: flinty marl, yellowish-grey, very hard 20–60 cm: anhydrite, dark grey, very fine-grained, finely streaky 60–100 cm: halite with admixture of anhydrite, marl and gypsum clasts Box 2: 0–30 cm: dark grey shale, heavily impregnated with anhydrite; core crushed
	2030.0–2036.5	Box 1: 0–23 cm: anhydrite with sparse streaks of dark grey shale, dipping at 30° 23–65 cm: dark grey shale, marly, slightly sandy; reacts to HCl+++ 65–85 cm: anhydrite, dark grey, abundant fine streaks, dipping at 24° 85–100 cm: shale, dark grey, slightly sandy, reacts to HCl++ Box 2: 0–26 cm: anhydrite, dark grey, relatively abundant streaks of dark grey shale, dipping at 20° 26–60 cm: shale, dark grey, impregnated with anhydrite, locally reacts to HCl+
	2061.6–2066.9	Box 1: 0–20 cm: marl, yellowish-grey, medium-firm, reacts to HCl+++ 20–24 cm: marl, yellow-grey, flinty, firm 24–55 cm: shale, dark yellowish grey, medium firm, with numerous slickensides along plane at ca. 5° to horizontal, reacts to HCl+++; dipping at ca. 60–65° 55–60 cm: anhydrite, dark grey, with considerable clay admixture 60–100 cm: shale, dark grey to blackish, medium firm, with admixture of pelitic mica, ca. 8 cm thick halite; core crushed
	2172.10–2176.10	0–26 cm: shale, grey coloured; reacts to HCl+++ 26–30 cm: fine-grained sandstone, firm, reacts to HCl+;/; core crushed; rock pieces bear slickensides 30–100 cm: halite layered with fragments of shale and gypsum, dipping at 40–45°

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Borehole	MD [m] (measured depth)	Core description
Boreholes drilled into evaporite succession inside the palaeovalley		
Pogórska Wola-15 In zone of deformation at the front of the Skole Nappe flysch wedge	1894.7–1900.0 core recovery: 3 m	3,0 m of core in boxes 1-3, evaporitic succession. Box 1: 0–5 cm: clayey sandstone, very fine-grained, with high clay content, compact, with streaks of dark-grey muddy material, not reacting to HCl. 5–10 cm: dark grey mudstone, slightly sandy, compact, not reacting to HCl. 10–100 cm: 10 cm thick intercalations of anhydrite and salt with thin claystone laminae, dipping at 45–50°. Boxes 2 and 3: grey-coloured salt with thin streaks of anhydrite and gypsum, with dip up to 43° in Box 3. At 80 cm salt folded with dips up to 70°
	1957.5–1959.5 core recovery: 2 m	Boxes 1 and 2: 0–200 cm: grey, clayey anhydrite shale with streaks and interbeds of clay containing dispersed anhydritic material. In Box 2 at 30–40 cm anhydrite intercalations laminated with grey-coloured claystone; dips of 50–60°; laminae up to 1 mm thick.
	2193.3–2196.3	anhydrite, grey of bluish shade, distorted, and grey, crystalline salt
Pogórska Wola-16 Undeformed evaporite succession at autochthonous position, ca 2.5 km in front of the flysch wedge (see Fig. 3A)	2292.0–2298.0	Mudstone, dark grey, locally anhydrite-bearing, medium firm
	2298.0–2304.0	Mudstone, grey-coloured, silty marl and marly shale, firm, compact, with platy parting along depositional planes, with dip up to 10°
	2310.0–2321.0	Marly shale, grey-coloured, compact, with platy parting along depositional planes and anhydrite intercalations
	2321.0–2327.0	Marly shale, grey-coloured, compact, firm, with platy parting along depositional planes and anhydrite stringers, dipping at 0° to 5°
	2382.0–2388.0	Claystone, grey-coloured, firm, with anhydrite stringers and laminae
	2388.0–2394.0 core recovery: 0.5 m	Fragments of firm limestone(?), grey anhydrite, with admixture of clayey and silty material, locally with wavy bedding
	2394.0–2397 core recovery: 1.8 m	Mudstone and anhydrite, grey-coloured, compact, firm, as above, passing downward into grey, compact, hard mudstone containing pelitic mica
2447.0–2452.0 core recovery: 0.6 m	Mudstone and claystone, grey-coloured, firm, hard, with intercalations of anhydrite and marly claystone	
Pogórska Wola-17 In tectonically deformed lower evaporite package beneath the Skole Nappe	1719–1723 core recovery: 4 m	mudstone, dark grey and grey, with tiny muscovite flakes, locally syderitic, low-cohesive, calcareous; mostly brecciated; core with dissolved portions, locally composed of rubble; numerous distorted interlayers of white or white-grey anhydrite, firm, of aphanitic texture; variably oriented, relatively numerous slickensides, mostly parallel to bedding; dips: 30–60°
Pogórska Wola TD-7 Evaporite succession deposited in thrust-top basin overlying the Skole flysch (see Fig. 3A)	995.0–1000.0	anhydrite, bluish-grey, clayey, of conchoidal fracture, interlayered with claystone near to the sole; wavy bedding; bituminous smell
	1005.0–1010.0	anhydrite, bluish-grey, massive, laminated, with clayey intercalations and wavy bedding
	1018.3–1018.6	sandstone, dark grey fractured and slickensided, with anhydrite-filled fissures
	1018.6–1031.5	claystone, dark grey, locally sandy, hard, with mica admixture; of bituminous smell, slickensided, with anhydrite intercalations
	1031.5–1036	clayey anhydrite with concretions and anhydrite interlayers; hackly and conchoidal fracture
	1057.0–1062.8	anhydrite, bluish-grey, layered, with claystone intercalations; anhydrite concretions at the sole
	1062.8–1065.8	anhydritic mudstone (anhydritic sand in clayey matrix), dark grey
	1065.8–1066.8	clayey anhydrite with concretions, interlayered with anhydritic mudstones as above
	1066.8–1068.8	anhydrite, bluish-grey, laminated
	1068.8–1071.0	clayey anhydrite, white-blue-grey in colour, with concretions
	1071.0–1071.8	anhydritic mudstone, dark grey, hard, of bituminous smell, with coalified plant fragments
	1071.8–1085.6	clayey shale and claystone, dark grey, hard, fragile, crumbly, slickensided and thrust-faulted, of bituminous smell; intercalations of clayey dolomite, hard, with anhydrite stringers
	1085.6–1091.2	clayey anhydrite, white-blue in colour, laminated, with interlayers of hard claystone, streaky bedding, minor slickensides
1091.2–1115.4	clayey anhydrite, grey, massive, hard, with intercalations of laminated anhydrite, interlayers of mudstone and slickensided clay; cross-bedding, conchoidal fracture	
1115.4–1127.8	claystone, dark grey, fractured and slickensided; with intercalations of anhydritic mudstone	

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Borehole	MD [m] (measured depth)	Core description
Wygoda-17 In basal part of tectonic thrust slice resting on undeformed Machów Fm.	694.0–699.0 core recovery: 1.3 m	claystone and mudstone, almost black, with abundant pockets of anhydrite, dips up to 90°
	826.0–832.0 core recovery: 1 m	claystone and mudstone, dark grey, almost black, with irregular dykes and pockets of whitish-grey to dark grey anhydrite; dips up to 60°
	1020.0–1026.0	claystone and mudstone, dark grey, with thin intercalations of fine-grained sandstone and anhydrite; core crushed
Wygoda-33 In basal part of tectonic thrust slice resting on undeformed Machów Fm.	898.0–904.0 core recovery: 0.3 m	sandy mudstone, grey to black in colour, with streaks of grey fine-grained sandstone, compacted, desintegrating in a platy and conchoidal manner; few slickensides, dip difficult to estimate; locally impregnated with anhydrite
	984.0–988.0 core recovery: 0.3 m	fine-grained sandstone, grey, with significant admixture of mudstone material; cohesive, locally impregnated with anhydrite; core in pieces of platy/conchoidal aspect; dipping at ca. 30°; additionally, clayey-muddy balls, black, not stratified, with tiny grains of anhydrite
Wygoda-34 In zone of deformation at the front of the Skole Nappe flysch wedge	1231.0–1237.0 core recovery: 1.8 m	shale, dark grey, fragile, bedding-parallel slickensided, irregularly developed, contorted, with dips up to 90°; in core present are black lumps, probably related to flysch deposits and lumps of marly shale, marl, fine-grained sandstone and anhydritic shale
	1301.0–1307.0 core recovery: 0.8 m	shale, dark grey, irregularly bedded; sandstone, light grey, fine-grained, hard, flinty; core represents deposits of the folded Miocene; it contains also anhydritic shale and salt inclusions
Żukowice-44 Undeformed evaporite succession in autochthonous position	1739.0–1744.0	0.0–0.7 m: muddy claystone, dark grey, slightly calcareous, medium hard, fragile 0.7–2.0 m: anhydrite, grey-brown to dark- and light brown coloured, fine-crystalline, mostly (except for light brown variety) variably clayey, locally slightly calcareous, intercalated with green-grey to dark grey muddy-anhydritic claystone (from mm to 30 cm thick interlayers), slightly calcareous, hard, compact, massive
Examples of boreholes penetrating the evaporite succession on the plateau		
Grabiec-2	1696.0–1702.0 core recovery: 4.5 m	mudstone and claystone, grey and dark grey, with 1–5 cm thick intercalations of grey crystalline anhydrite; the mudstone shows shaley aspect; anhydrite is cohesive and hard
Pilzno-7	1661.0–1664.0 core recovery 100%	Boxes 1–3: 0–20 cm: sandstone, light grey, very fine-grained, firm, hard, slightly clayey. 20–300 cm: anhydrite, dark grey, medium- to fine-grained, with shale intercalations, clay-content ca. 20%
	1664.0–1670.0 core recovery 50%	Boxes: 1–3: 0–60 cm: anhydrite, light grey, fine-grained, crystalline with laminae of shale, dipping at 5° 60–200 cm: shale, dark grey, hard, of bedding-parallel parting, locally slightly sandy, slightly micaceous, in places laminated with light grey sandstone, fine-grained, hard; dip of ca. 5–7°
Pilzno-10	1985.0–1991.0 core recovery: 1.1 m	Boxes 1–2: anhydrite, grey and dark grey, firm, with dispersed clayey matter and rare clay interlayers; rock distorted to highly distorted