Chapter			Chapter 8.4.2		Chapter 8.4	1.3	Chapter 8.4.4			Chapter 8.4.6	Chapter 8.4.	7				
	boundary	Lower boundary [cm]	Homogeneity	of the layer	Water		Organic, organo- technic or mineral layer	Layer bound		Wind deposition	Coarse frag	ments and r	emnants of I	broken-up ce	mented laye	rs
			consisting of different parts	Layer composed of several strata of alluvial sediments or of tephra		Soil water status		Distinctness of the layer's lower boundary	·		Coarse fragr	nents				
			tephra Described parts, by exposed area [%] (if all: write 100)								abundance, by volume				shape class 4	Weathering stage of size and shape class 1
				For cells colours												

For cells coloured in brown, a code is required. For cells coloured in green, figures or free text are required.

The percentage refers to the exposed area, to the volume or to another reference explained in Annex 1. Unless stated otherwise in Annex 1, it refers to the fine earth and to the whole layer (not to a fraction of the layer). Do not leave cells empty. At least the first column of every chapter must be filled in. If a characteristic is not applicable, write NA. If there is a characteristic, which you did not investigate, write NI.

(NA is also used if a type 2, size class 2 etc. is not present. NI is also used if a type 2, size class 2 etc. is neglected because of little importance.)

You may prepare your individual short version. If you are sure that in the area of your soil survey certain characteristics cannot occur, you may delete the respective columns.

Citation: IUSS Working Group WRB. 2022. World Reference Base for Soil Resources. 4th edition. Annex 4. International Union of Soil Sciences (IUSS), Vienna, Austria.

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					Remnants of	f broken-up c	emented laye	ers				Free large pores between coarse fragments, by volume [%]
stage of size and shape	Weathering stage of size and shape class 4	of size and shape class	of size and shape class	of size and shape class	abundance, by volume			shape class of remnants cemented by cementing	Size and shape class of remnants cemented by cementing agent 2	remnants cemented by cementing agent 1, by	Abundance of remnants cemented by cementing agent 2, by volume [%]	

Chapter 8.4.	8															Chapter 8	
Artefacts																class	Subclass of the texture classes sand and loamy sand
	Black	Type 1	Type 2	Type 3	Type 4	Type 5	Size class	Size class	Size class	Size class	Abundance						
abundance,		(dominant)					of type 1	of type 2	of type 3	of type 4	of type 1,		of type 3,	of type 4,	of type 5,		
	by exposed										by volume [%]	[%]	[%]	by volume [%]	by volume [%]		
[,~]	area [%]										[,~]	[,0]	[,0]	[,~]	[,0]		
			<u> </u>	<u>L</u>	<u> </u>	<u> </u>	<u></u>										<u> </u>

Chapter 8.	4.10														
Structure															
	netrability for ro	ots and siz	ze classes are	only reporte	d for aggreg	ates)									
First-level s	structure														
Type 1								Type 2							
Туре	Abundance of type 1, by volume [%]	Grade	Penetrability for roots	Size class 1	2	size class 1,	Abundance of size class 2, by volume [%]		Abundance of type 2, by volume [%]	Grade	Penetrability for roots	Size class 1	Size class 2	size class 1,	Abundance of size class 2, by volume [%]

									vel structure e by volume of	the respec	tive first-level :	structure)			
Type 3								Type 1.1							
Туре	Abundance of type 3, by volume [%]	Grade	Penetrability for roots	Size class 1	2	Abundance of size class 1, by volume [%]	size class 2,		Abundance of type 1.1, by volume [%]		Penetrability for roots	Size class 1	2	Abundance of size class 1, by volume [%]	size class 2,

Type 1.2		 					Type 2.1		 				
Туре	Abundance of		Size class	Size class	Abundance of	Abundance of	Туре	Abundance of		Size class			Abundance of
	type 1.2, by volume [%]	for roots	1		size class 1, by volume [%]			type 2.1, by volume [%]	for roots	1		size class 1,	size class 2, by volume [%]
	VOIGITIO [70]	 			o, voidino [/0]	of voiding [/0]		VOIGITIO [70]				by volume [70]	by voidino [70]
		 									 		
		 							 				
		 							 				
		 †							 				
		 									1		

Type 2.2		 					Type 3.1		 				
Туре	Abundance of		Size class	Size class	Abundance of	Abundance of	Туре	Abundance of		Size class			Abundance of
	type 2.2, by volume [%]	for roots	1		size class 1, by volume [%]			type 3.1, by volume [%]	for roots	 1		size class 1, by volume [%]	size class 2, by volume [%]
											<u></u>		

								Third-level (percentag	structure e by volume of	the respec	tive second-le	vel structure)		
Type 3.2								Type 1.1.1							
Туре	Abundance of type 3.2, by volume [%]	Grade	Penetrability for roots	Size class 1	2	Abundance of size class 1, by volume [%]	size class 2,		Abundance of type 1.1.1, by volume [%]		Penetrability for roots	Size class 1	2	Abundance of size class 1, by volume [%]	size class 2,

Type 1.2.	1							Type 2.1.1		 				
Туре	Abundance of	Grade		Size class	Size class	Abundance of	Abundance of	Туре	Abundance of		Size class			Abundance of
	type 1.2.1, by volume [%]		for roots	1		size class 1, by volume [%]			type 2.1.1, by volume [%]	for roots	1 		size class 1, by volume [%]	size class 2, by volume [%]
												<u></u>		

Type 2.2.	1							Type 3.1.1		 				
Туре	Abundance of	Grade		Size class	Size class	Abundance of	Abundance of	Туре	Abundance of		Size class		Abundance of	
	type 2.2.1, by volume [%]		for roots]		size class 1, by volume [%]	by volume [%]		type 3.1.1, by volume [%]	for roots]		size class 1, by volume [%]	by volume [%]
												<u></u>		

								Chapter 8	.4.12							
								Non-matr								
							Wedge- shaped aggregates tilted	Type 1			Type 2			Type 3		
Type 3.2.	1	 					between ≥ 10° and ≤ 60° from the horizontal: abundance, by volume [%]		Dominant size class	Abundance	Туре	Dominant size class	Abundance	Туре	Dominant size class	Abundance
Туре	Abundance of type 3.2.1, by volume [%]	Penetrability for roots	Size class 1	Size class 2	Abundance of size class 1, by volume [%]	size class 2,										
		 														

			Chapter 8.4.	13			Chapter 8.4		Chapter 8.4.								!
			Cracks				Stress feat	ures	Matrix color	ır							
Type 4			Persistence		width [mm]	[number of cracks]	of pressure faces [%, see 8.4.14]	of slickensides	Colour 1 (do	minant)		Colour 2			Colour 3		
Туре	Dominant size class	Abundance							Munsell moist	Munsell dry	Exposed area [%]	Munsell moist	Munsell dry	Exposed area [%]	Munsell moist	Munsell dry	Exposed area [%]

Chapter 8.4	4.18			Chapter 8.4.	19							Chapter 8.4.2	0			
	ons of darke nd lighter-co			Lithogenic	variegate	S						Redoximorph	ic features			
textured p																
	Continuous			Colour 1 (do	minant)		Colour 2		Colour 3			Colour 1 (dom	inant)			
		•	area covered													
any	coarser-	tongues	[%]													
width of ≥ 0.5 cm, by exposed area [%]	parts with a horizontal extension of ≥ 1 cm, by exposed	cover ≥ 10% of the exposed area [cm]		Munsell moist		Exposed area [%]		Exposed area [%]		Size class	Exposed area [%]	moist	Munsell dry (only if reducti- morphic)	Substance		Size class 2
	area [%]															
			<u> </u>					 							 	

	0-10								O-1 1							
	Colour 2								Colour 3							
		Y	y			·				y	Y	,	Y			·y
Exposed	Munsell	Munsell dry	Substance	Location	Size class	Size	Cementation	Exposed	Munsell	Munsell dry	Substance	Location	Size class	Size		
area [%]	moist	(only if					class	area [%]	moist	(only if					class	area [%]
		reducti-			(dominant)					reducti-			(dominant)			
		morphic)								morphic)						
																
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	Exposed	area [%] moist	Exposed Munsell Munsell dry	Exposed Munsell Munsell dry Substance area [%] moist (only if reducti-	Exposed Munsell Munsell dry Substance Location area [%] moist (only if reducti-	Exposed Munsell Munsell dry Substance Location Size class area [%] moist (only if reducti- (dominant)	Exposed Munsell Munsell dry Substance Location Size class Size area [%] moist (only if reducti- (dominant)	Exposed Munsell Munsell dry Substance Location Size class Size Cementation area [%] moist (only if reducti- (dominant)	Exposed Munsell Munsell dry Substance Location Size class Size Cementation Exposed area [%] moist (only if reducti- (dominant)	Exposed Munsell dry Conly if reducti- Substance Location Size class Size Cementation Exposed Munsell Class Class	Exposed Munsell dry Conly if reducti- Exposed Munsell dry Conly if (dominant) Size class Size Cementation Exposed Munsell Munsell dry class 2 class area [%] moist (only if reducti-	Exposed Munsell dry Substance Location Size class area [%] moist (only if reducti- (dominant) Class 2 class area [%] Munsell dry Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area [%] moist (only if reducti- (dominant) Class 2 class area (dominant) Class 2 class 2 class 2 class 2 class 2 class 2 class 3 c	Exposed Munsell dry Conly if reducti- Exposed Munsell dry Coation Size class 1 Class 2 Class area [%] Munsell dry Conly if (dominant) Class 2 Class area [%] Munsell dry Conly if reducti-	Exposed Munsell dry Conly if reducti- Substance Cocation Size class 2 class 2 class area [%] Munsell dry Conly if (dominant) Class 2 class area [%] Munsell dry Conly if (dominant) Class 2 class area [%] Munsell dry Conly if (only if reducti- (dominant) Class 2 class area [%] Munsell dry Conly if (only if reducti- (dominant) Class 2 class area [%] Munsell dry Conly if (dominant) Class 2 class area [%] Munsell dry Conly if (only if reducti- (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class area [%] Munsell dry Conly if (only if (dominant) Class 2 class 3 c	Exposed Munsell dry Conly if reducti- Exposed Munsell dry Substance Location Size class 1 class 2 cla	Exposed Munsell dry Conly if reducti- Substance Cocation Size class 2 class 2 class area [%] Cocation Conly if (dominant) Compared the control of the class 2 class area [%] Cocation Compared the class 2 class area [%] Cocation C

								Chapter 8.4.22						Chapter 8.4.2			
							rH value	Initial weathering	Coatings a	nd bridges				Ribbon-like accumulations			
Total abun	dance, by e	xposed are	a [%]			Abundance of cemented oximorphic features, by volume [%]		by exposed area [%]		Abundance of clay bridges [%, see 8.4.23]	matter coatings and oxide coatings	of cracked coatings [%, see 8.4.23]	of uncoated sand and coarse silt	Substance(s)	Number	Combined thickness [cm]	
morphic:	morphic:	oxi- morphic: random	reducti- morphic: inner	reducti- morphic: outer	reducti- morphic: random						(report only if matrix colour value ≤ 3)		grains [%, see 8.4.23]				

Chapter 8.	4.25									Chapter 8.4	.26	Chapter 8.4.	27				1
Carbonate	·S									Gypsum		Secondary	silica				
Content in	the matrix	Secondary								Content	Secondary	Type 1		Size class			Abundance
			orted in the s to 8.4.3, Ta	soil water st ble 8.28)	atus moist c	r wet,				(only in layers with	gypsum: Total				of type 2 (only DN	abundance, by exposed	of DN and FC with size
				,						little readily	abundance,				and FC)	area [%,	≥ 1 cm, by
Content	Retarded reaction	Type 1	Type 2	Туре 3		Abundance type 1 [%, see 8.4.25]	type 2 [%,	type 3 [%,	Abundance type 4 [%,	soluble salts)	by exposed area [%]					see 8.4.27]	volume [%]
						000 0.1.20]	000 0.1.20]	000 0.1.20]	000 0.1.20]								
		<u> </u>															

Chapter 8.4.28	Chapter 8.4	1.29	Chapter 8.4.3	0									Chapter 8.4	.31	
Readily soluble salts	Field pH		Consistence										Surface cru	ısts	
EC _{SE} [dS m ⁻¹]	Potentiome measureme	ent	Cementation, by volume [%]	Cementing agents				Rupture resistance class, dry	Susceptibility for cementation	Manner of failure	Plasticity	Penetration resistance		Sealing agent 2	Sealing agent 3
	Measured value	Solution and mixing ratio		Agent 1 (dominant)		Agent 3									

Chapter 8.	.4.32	Chapter 8.4.	.33	Chapter 8.4	.34					Chapter 8.4	4.35	Chapter 8	.4.36			
Continuity materials cemented	and	Volcanic gla andic chara		Permafrost	features					Bulk dens	ity	Soil orga	nic carbon	(C _{org})		
occupied by the fractures	distance between the	Abundance of volcanic glasses in the sand and coarse	Thixotropy and NaF field test	Cryogenic a	Iteration				Layers with permafrost		Bulk density	Organic c content [%		Natural accumulations of organic matter		
		silt fraction		Feature 1 (dominant)	Feature 2	feature 1, by exposed	by exposed	feature 3,				min.	max.	Type 1 (dominant)	Type 2	Туре 3

			Chapter 8.4.		Chapter 8									Chapter 8.4.	39	
			Roots			of animal a	activity							Human alte	rations	
		Black carbon, by exposed area [%, see 8.4.36]	Abundance of roots ≤ 2 mm	Abundance of roots > 2 mm	Type 1	Type 2	Type 3	Type 4	activity, by exposed	activity, by exposed	activity, by exposed	activity, by	by exposed area [%]	natural mate	rial	
type 1, by exposed	Abundance													Material 1 (dominant)	Material 2	Material 3

								material	of dead	Horizon designation				
					In-situ altera	ations	Soil aggregate formation after additions or after in-situ alterations		Subdivision of the Oa horizon	Dead natura	al plant res	idues		
material 2, by volume	material 3,	Texture	MS: Carbonate content	MS: C _{org} content	Type 1 (dominant)	Type 2				Type 1 (dominant)	Type 2	Abundance type 1, by volume [%]		