

Rock	Sedimentary Rock	Clastic	Claystone/Mudstone						
(German)	R - A		<b>Sandstones</b>	<b>Sandstone</b>	> 90 % grains of Quartz (SiO <sub>2</sub> ) For some very durable and hard sandstones, mostly with quartzitic cementation, Quarzite is used as trivial name. Real Quarzites however are metamorphic!	Elbsandsteingebirge, Odenwald, Pfälzer Wald, Moab (Utah)	Sächsische Schweiz, Adersbach (CZ), Pfälzerwald <a href="#">R - A</a>		
				<b>Arkose</b>	> 25 % Feldspar molasse sedimentation within continents	Fountain Formation (Colorado), Uluru (Australia)	Denver (Colorado) <a href="#">R - A</a>		
				<b>Greywacke</b>	material similar Arkose, but > 15 % matrix and marine sedimentation	Thüringer Wald	Steinbruch am Bocksberg <a href="#">R - A</a>		
				<b>(Gritstone)</b>	rounded grains, mostly quartz and feldspar, 1-4 mm. Most of them would fit in sandstones-rock group, some are slightly conglomeratic. However possibly grains up to 4 mm. Definition of Sandstone ends up at 2 mm. (After all local and/or special English rock name.)	Peak District (England)	Western Gritstone (Peak District) <a href="#">R - A</a>		
				<b>Conglomerates and Breccias</b>	<b>Conglomerate</b>	> 50 % rounded grains and clasts > 2 mm up to >> 63 mm in fine matrix	Meteora (Greece) Uluru (Australia)	Meteora <a href="#">R - A</a>	
					<b>Breccia</b>	> 50 % broken and sharp edged grains and clasts > 2 mm up to >> 63 mm in fine matrix. Volcanic breccias are listed under "Igneous" (-> "Breccia"). However could be classified as sediments, too.	Innsbruck	Höttinger Steinbruch <a href="#">R - A</a>	
				<b>Chemical and Biochemical</b>	<b>Carbonates</b>	<b>Limestone</b>	CaCO <sub>3</sub>  <u>Special types:</u> - <a href="#">Tufa</a> - <a href="#">Chalk</a> - <a href="#">Calcareous sinter</a>	Fränkische Alb, Wetterstein, Marmolada, Karwendelgebirge (E.g. Laliderer Wände)  <u>Special:</u> Switzerland Kent/England Greece, Italy	Mittlerer Karwendelkopf  <u>Special:</u> La Touffière Kreideklippen Kalymnos Ceredo <a href="#">R - A</a>
			<b>Dolomite / Dolostone</b>			90 % CaMg(CO <sub>3</sub> ) <sub>2</sub> harder and more brittle than limestone	Fränkische Alb, Wetterstein, Dolomites (Rosengarten, Schlern, etc.. - Latemar, Marmolada however consist of limestone!)	Drei Zinnen, Sella, Rosengarten (Violet), Schlern <a href="#">R - A</a>	
			<b>Chert</b>		Chert is a special rock consisting of quartz (SiO <sub>2</sub> ). Bigger layers which would allow climbing in most cases are originating in former bionic quartz skeleton remains of deep marine organisms (e.g. Radiolarite).  In a special case (*) underwater 'hydrothermal' activity might result in sedimentary cherts, too, which however than is quite different of normal hydrothermal 'Quartz'.	Gunflint Chert, (Ontario), Rhyne Cherts (Scotland), Bitter Springs Formation (Amadeus Basin, Australia) Apex Chert (Pilbara, Australia)	Radyne <a href="#">R - A</a>		
			<b>Evaporites</b>		Halite, Gypsum, Anhydrite				

<b>(German)</b>	<b>Metamorphic Rocks</b>	<b>Gneiss</b>		Bayerischer Wald, Schwarzwald, Alps	Kaitersberg Todtnau <a href="#">R</a> - <a href="#">A</a>
	<b>R - A</b>	<b>Schist</b>	> 50 % mica	Alps	Marchegg <a href="#">R</a> - <a href="#">A</a>
		<b>Marble</b>	metamorphically altered sedimentary carbonates  'Marble' is used for a lot of quite normal Carbonates respectively their products, and even for some Serpentinites and Granits, too. However, under petrographic point of view Marbles in general are carbonatic metamorphic rocks only!	Südtirol, Carrara (Italy), Thassos (Greece)	Nesselwand (Laas, Südtirol) <a href="#">R</a> - <a href="#">A</a>
		<b>Quarzite</b>	> 98 % .Quartz (SiO <sub>2</sub> ) and metamorphic (!) Do not mix up with simply tough "Sandstones" and "Hydrothermal and Metasomatic" "Quartz" or even "Chert"!	Hundsrück Kalpetranquarzit (Wallis)	Kirner Dolomiten (Hundsrück), Medij (Mattertal, Schweiz) <a href="#">R</a> - <a href="#">A</a>
		<b>Serpentinite</b>	mostly metamorphically altered peridotite from former deeper oceanic crust former subduction zones and oceanic crust	Granatspitzgruppe, Umbalta (Osttirol), Steinwald	Blauspitze <a href="#">R</a> - <a href="#">A</a>
		<b>Amphibolite</b>	mostly metamorphically altered Gabbro E.g. within all <a href="#">varistic orogens</a>	Alps	Kühstein (Steinwald), Großes Grünhorn (Schweiz) <a href="#">R</a> - <a href="#">A</a>
		<b>Greenschist and Prasinite</b>  Prasinite is without schistosity	Very broad range of completely different looking rock types. However all containing lots of green minerals! Originally mostly former mafic volcanic rocks. (Not all are durable enough for climbing.)	Taunus Alps	Lorsbacher Wand Großglockner <a href="#">R</a> - <a href="#">A</a>
		<b>Hornfels</b>	At 600-700° completely recrystallised minerals (not molten!) and thus mostly very tough. Broad range, depending on educt.	Harz, Alps	Radautal Seebichl-Kraig <a href="#">R</a> - <a href="#">A</a>
		<b>Slate</b>	very first step of metamorphism of very finegrained (< 0,002 mm) sediments	Thüringen	Spiegelwand <a href="#">R</a> - <a href="#">A</a>
		<b>Migmatite</b>	partly remolten rock	Schwarzwald Norway, Brasil, India	Gfällfelsen <a href="#">R</a> - <a href="#">A</a>
	<b>Diabas/Grünstein (German)</b>	In German Diabas is a traditional designation for some sorts of geologically 'old' and thus slightly metamorphous altered 'green' basalts. The English "Diabase" is a different basaltic igneous rock (Dolerite)!	Thüringen/Sachsen Frankenwald	Steinicht Selbitztal  Thecrag-tagged under <b>Basalt</b> as metamorphism is very low grade only and most textures basaltic	

© Harald Rost 2016, 2017, 2020	<b>Igneous Rock</b>	<b>Plutonic (Intrusive rocks)</b>  Solidificated > 5 km depth	<b>Peridotite</b>		mostly olivin (< 40 %), pyroxen	Val Malenco (Italy)	Val Malenco <a href="#">R</a> - <a href="#">A</a>	
			<b>Gabbro</b>			Harz, Odenwald, Furth im Wald	Gabbrowand <a href="#">R</a> - <a href="#">A</a>	
			<b>Anorthosite</b>			USA, Canada, Norway	Carlton Peak <a href="#">R</a> - <a href="#">A</a>	
			<b>Diorite</b>		plutonic equivalent to Andesite  < 5 % quartz (5-20 % quartz is Quartz diorite, which than would count as Granitoid)	USA,  Odenwald, Kyffhäuser, Bayerischer Wald, Ruhla	Diorite Peak (Colorado) <a href="#">R</a> - <a href="#">A</a>	
			<b>Monzonite</b>		Looks similar to Granite	Italy, USA	Joshua Tree R - A	
			<b>Granitoids</b>	<b>Syenite</b>		Looks similar to Granite, but 0-5 % (-20 % Quarzsyenit) quartz only. (In German only > 20 % Quartz isGranitoid!)  plutonic equivalent to Trachyt	USA,  Odenwald, Schwarzwald, Thüringer Wald	Little Falls (New York) <a href="#">R</a> - <a href="#">A</a>
				<b>Granodiorite</b>		equivalent to dazite,  looks very similar to Granite	Yosemite (USA)	Half Dome El Capitan <a href="#">R</a> - <a href="#">A</a>
				<b>Granite</b>		<a href="http://www.climbing.com/climber/10-things-you-didnt-know-about-granite/">http://www.climbing.com/climber/10-things-you-didnt-know-about-granite/</a>	Yosemite (USA) Mont Blanc, Bergell, Schwarzwald, Harz, Fichtelgebirge Steinwald Oberpfälzer Wald	El Capitan  Rudolfstein Räuberfelsen <a href="#">R</a> - <a href="#">A</a>
				<b>Tonalite</b>		looks very similar to Granite	Yosemite (USA), Periadriatic Seam	El Capitan Rieserferner, Adamello <a href="#">R</a> - <a href="#">A</a>
			<b>Volcanic (Effusive rocks)</b>  Solidificated < 5 km depth – earth surface  <a href="#">R</a> - <a href="#">A</a>	<b>Andesite</b>		volcanic equivalent to "Diorite"	Vogelgebirge (CZ), Japan	Žarnov (CZ) Jogasaki (Japan) <a href="#">R</a> - <a href="#">A</a>
		<b>Trachyte</b>		volcanic equivalent to "Syenite"	Weidenhahn (Rheinland-Pfalz), Selters (Westerwald), Hefmanovský trachyt (Teplá , CZ), Valkeřický trachyt (Algersdorf , CZ)	Drachenfels Flinders Peak (Australia) <a href="#">R</a> - <a href="#">A</a>		
		<b>Phonolite</b>		Continental	Rhön Eifel, Kaiserstuhl, Wyoming (USA)	Steinwand  Devils Tower <a href="#">R</a> - <a href="#">A</a>		
		<b>Rhyolite</b>		Mostly pophytric texture, e.g. Quarzporphyr	Sachsen Odenwald	Lobejün Schriesheim <a href="#">R</a> - <a href="#">A</a>		

(German)			<b>Basalts</b>	<b>Basalt</b>	volcanic equivalent to "Gabbro"	Eifel, Steinwald (no climbs), Rhön	Ettringen (Teichelberg) <a href="#">R - A</a>	
			<u>several types:</u>					
			a. continental	<b>Dolerite/Diabase</b> Diabase (engl.)	fine-grained but not as fine as basalt (not identical with Diabas (German))  chemically and mineralogically same as <b>Basalt</b> , but subvolcanic!	Tasmania, <b>Rhenoharzynikum</b> (Central Europe and England)	Double Dozen <a href="#">R - A</a>	
			b. oceanic:	<b>Tephrite</b>	Continental colloquially <b>Basalt</b>	CZ	Ralsko <a href="#">R - A</a>	
			MORB, mid ocean ridge (e.g. Island) CMB, continental margin basalt (e.g. Peru)	<b>(Basanite)</b>	colloquially <b>Basalt</b>	CZ	Konstantinky Thecrag-tagged under <b>Basalt</b>	
			IAB, island arc basalt (e.g. Japan)	<b>(Diabas)</b> (German)	Slightly metamorphic green basalts thus generally listed under <b>Metamorphic rocks.</b>	Thüringen/Sachsen	Steinicht  Thecrag-tagged under <b>Basalt</b> as metamorphism is very low grade only and most textures still are basaltic.	
			OIB, ocean island basalt (e.g. Hawaii)	<b>(Foidite)</b>			In case tag within Thecrag as <b>Volcanic</b>	
				<b>(Latite)</b>				
				<b>(Dacite)</b>	volcanic equivalent to Granodiorite and Tonalite			
				<b>Ignimbrite</b>	pyroclastics molten together, fine matrix	Sachsen, Bozener Quarzporphyr, (I) New Zealand, Yucca Mountain (Nevada)	Rochlitzer Berg Pfattner Wände Waikato <a href="#">R - A</a>	
				<b>Tuff</b>	> 75 % pyroclastics, often light weighted because of included gas	Japan, USA, Frankenwald, Ettringen, Eifel, Rochlitz, Hilbersdorf, Cappadocia	Jo-yama Deadman Summit Fattigsmühle <a href="#">R - A</a>	
				<b>Agglomerate</b>	Pyroclastica, > 75 % vulcanic bombs	Japan, West-Africa (?), Eifel, Stromboli,	Mitsutouge Ascension (?) <a href="#">R - A</a>	
				<b>Breccia</b>	volcanic breccia (sharp edged components – also see "sedimentary" rocks) due to eruptions/explosions or autobreakage, in volcanic pipes, lava and around volcanos	Frankenwald California	Fattigsmühle The Pinnacles <a href="#">R - A</a>	
Hydrothermal and Metasomatic  <a href="#">R - A</a>	<b>Quartz</b>  <a href="#">R - A</a>	SiO <sub>2</sub>  Do not mix up with "Quartzite" which originates in sandstone) or with "Chert" (originating in marine sediments). However, in single cases hydrothermal activity might be reason for sedimentary cherts, too (hot spring chert deposit, 'Deseado Massif', Patagonia)	<b>Hydrothermal:</b> Bayerischer Wald, Böhmischer Pfahl (CZ)  <b>Metasomatic:</b> Odenwald	Pfahl Göthefelsen  Borstein, Hohenstein				
	<b>Carbonates</b>		Atlantis Massiv, submarine	Lost City				