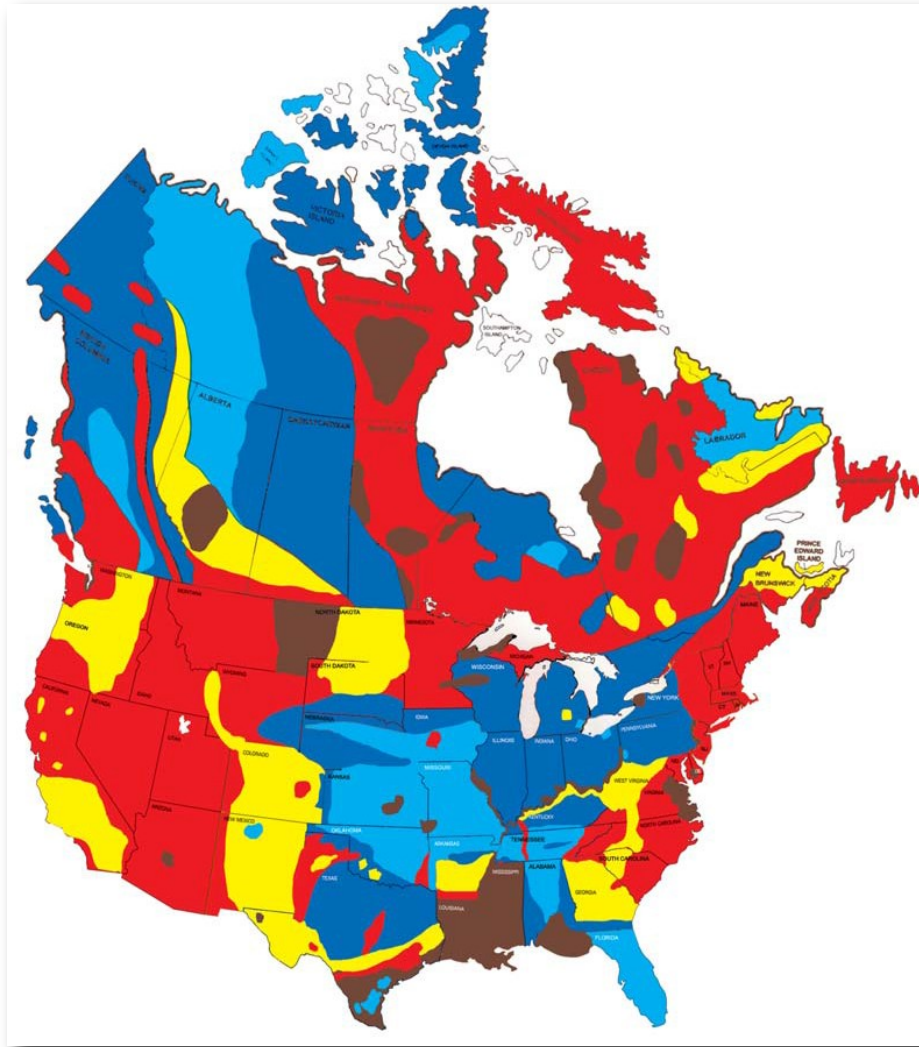


Aggregate Classification Map of North America



Soft

Dolomite Limestone, Sandstone, Siliceous, Soft Limestone, Soft Shell

Medium Soft

Dolomite, Limestone, Pit Gravel

Medium

Decomposed Granite, Medium Crushed Gravel, Medium Traprock, River Gravel

Medium Hard

Basalt, Granite, Quartzite, Slate Traprock,

Hard

Flint Rock, Hard Chert, Hard River Rock, Quartz

This aggregate map is not intended, nor shall it be used, to precisely define all aggregate in a given area. Instead it is published as a "general guide" to the predominant aggregate hardness (as it relates to grinding) likely to be encountered in the area defined by the various colors. Other types of aggregate can be found in many parts of the U.S. and Canada.

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Aggregate Classification

One of the key factors that determines the performance and longevity, of diamond tooling is the type of aggregate in the concrete or asphalt being cut.

Aggregate is defined as the stone, gravel and sand used in paving materials like concrete and asphalt. Aggregate may be crushed or uncrushed. Crushed aggregate may be limestone, granite, sandstone, traprock, etc. Sand and gravel are typically found in natural deposits, like riverbeds, stream courses or lake basins.

Aggregate is generally divided into "fine aggregate" (passes through a No 4 sieve, 0.187' square opening) and "coarse aggregate" (almost all of which is retained on a No 4 sieve and may range in size up to 3" particles).

While recognizing that aggregate size and type can vary dramatically on any given project, it is generally true that aggregates are similar within geographical areas. This is primarily due to local availability of one type of material and the prohibitive cost of importing anything else.

It should also be pointed out that any aggregate can be ground. However, the cost of grinding is usually directly related to aggregate hardness and size. The map is simply a reference tool to provide a general sense of aggregate similarity in various areas of the country. A brief description of the predominant aggregate in each state follows.

Alabama	Aggregates vary from favorable materials such as limestone, sandstone, and blast furnace slag to hard materials such as quartzite and chert. The harder aggregate materials are found in the central and southwest sections of the state.
Alaska	The predominant aggregates are gravel and crushed rock and would be classified as medium-hard.
Arizona	A medium-hard gravel aggregate is encountered in most of the state and a medium-soft decomposed granite in some areas in the northern part of the state. The sand content tends to be highly abrasive.
Arkansas	A medium-hard granite aggregate is encountered in the southern two-thirds of the state and a hard chert river gravel aggregate in the northern and northeastern part of the state.
California	Medium-hard gravel aggregates are encountered in the El Centro through San Diego area as well as in the northern part of the state. A medium to medium-soft aggregate is encountered in the San Clemente, Los Angeles, Paso Robles, Lancaster and Bakersfield area.
Colorado	The northern part of the state has medium to medium-soft aggregate comprised of decomposed granite. The Denver area and southeastern and eastern sections have medium-soft decomposed granite, limestone and gravel. The Colorado Springs area consists of a medium-hard gravel.
Connecticut	Generally the aggregates consist of medium to medium-hard traprock and dolomite.
Delaware	The major portion of the state contains medium-soft traprock and limestone aggregates. The Wilmington area does produce a medium-hard gravel aggregate.



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Florida	Generally the aggregates are composed of soft shell and argillaceous, siliceous and dolomitic limestone. The northern area sometimes uses hard Georgia and Alabama aggregates.
Georgia	Aggregates in the northern part of the state are medium-soft sandstone and limestone. The southern three-quarters of the state has medium-hard to hard granite, schist, gneiss, and quartzite aggregates.
Hawaii	Aggregate conditions throughout the islands are of the medium-hard, basaltic type.
Idaho	Generally medium-hard crushed stone and gravel aggregates.
Illinois	Aggregates in this state may be divided into three sections; the northern area medium to hard gravel; the central section medium gravel and limestone; the southern area soft limestone.
Indiana	The state has generally soft crushed limestone except in the southern and northwestern sections where medium-hard Ohio and Wabash river gravel occur.
Iowa	In the Des Moines and central Iowa area medium-hard pit and river gravel are typical. Aggregates found in the eastern, central and southwestern sections are soft limestone. The eastern border along the Mississippi River has hard chert river gravel. Medium-hard pit gravel with quartzite is found in the northwestern section.
Kansas	The aggregate conditions generally found are soft limestone. Medium-hard limestone, dolomite and hard chert gravel are found in the southeastern section, and medium-hard pit gravel in the north central area.
Kentucky	Approximately 90% of the state has aggregates of medium-soft limestone and sandstone. The northern section along the Ohio River has medium-hard quartzite river gravel.
Louisiana	Aggregate conditions in the state range from soft shell to hard chert.
Maine	In general a medium-hard dolomitic gravel and some traprock is encountered in this state.
Maryland	About 60% of the state has medium-soft limestone aggregate. The balance of the state has a medium-hard river gravel.
Massachusetts	The aggregate generally found is medium traprock except in the northern section bordering New Hampshire where the aggregate is medium-hard.
Michigan	Generally medium-hard glacial gravel is found. The Pontiac, Flint, Mount Clemens area contains fair amounts of hard chert or flint.
Minnesota	Aggregate in the central and northern part of the state consists of medium-hard glacial gravel. In the southern section medium-soft quarried limestone prevails.



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Mississippi	Hard and medium-hard aggregates are found in the southwest section of the state and consist of the chert and quartzite.
Missouri	Soft limestone aggregate predominates in this state with a hard chert aggregate in the St. Louis area (Meramec River gravel) and a similar hard flint aggregate in the Joplin area.
Montana	The eastern section is a hard aggregate area, the Great Falls area contains a medium-hard gravel and crushed stone aggregate and the Glasgow and Miles City areas have a hard quartz and chert aggregate.
Nebraska	Eastern and central sections contain a medium limestone and gravel mixture and the Western areas have a straight medium-hard gravel aggregate.
Nevada	The predominant aggregates are medium to medium-hard gravel and crushed decomposed granite.
New Hampshire	Generally medium-hard to hard granite gravel aggregates are encountered.
New Jersey	The predominant aggregates are a medium traprock and a hard river gravel.
New Mexico	Northern areas contain medium-soft aggregate shipped in from Colorado. A medium limestone with some quartz aggregate is encountered in the southern part of the state (Gallup, Alamogordo, Deming and Lordsburg). The Tucumcari area has a medium-hard gravel aggregate. A medium-hard to hard gravel is encountered in the Albuquerque area.
New York	There are three predominant aggregates in this state, a medium-soft limestone, medium traprock and medium to medium-hard granitic gravel.
North Carolina	Medium-hard and hard aggregates exist throughout the state and consist of granites, schist, gneiss and quartzite. There is some scattering of a medium limestone.
North Dakota	In general a medium-hard glacial gravel is encountered consisting of limestone, granitic gneiss, basalt, quartzite and chert. In the eastern half of the state the aggregate combinations are medium-soft.
Ohio	Generally a medium-soft pit gravel is encountered throughout the state except in the areas along the Ohio River where a medium-hard river bed aggregate is used.
Oklahoma	Soft limestone is generally encountered except in the western section where a medium-hard granite aggregate is used.
Oregon	The western section contains a hard granite aggregate and on the east side of the mountains a medium crushed gravel is encountered.
Pennsylvania	Generally medium-soft limestone and medium traprock aggregate are encountered except in steel mill areas where soft slag might be used. Pit gravel is commonly used in the Philadelphia area.
Rhode Island	A medium hard traprock aggregate is generally used throughout the state.



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South Carolina	Predominantly the aggregates consist of a medium-hard quartzite, granite and gneiss with some limited amounts of medium-soft crushed limestone and marble.
South Dakota	There are three types of aggregate encountered in this state. The eastern area consists of hard quartzite aggregate, the central portion has a medium-hard gravel aggregate and soft limestone aggregates in the western section.
Tennessee	In general medium-hard aggregates are encountered throughout the state with some medium quartzite west of Nashville and hard chert aggregate along the Mississippi River.
Texas	The predominant aggregate encountered consist of medium limestone and dolomite with a medium-hard quartzite around the San Antonio area and hard chert along the Coast area.
Utah	Aggregates consist of medium gravel throughout the state.
Vermont	In general medium to medium-hard granitic gravel aggregate is encountered throughout the state. Large aggregate is often encountered.
Virginia	Medium-hard granite gates are normally encountered throughout the state with medium-hard to river gravel in the Norfolk and Washington D.C. areas.
Washington	Medium to medium-hard gravel and crushed stone aggregate encountered on the eastern mountains and hard gravel aggregate on the western side and in the Seattle Tacoma areas.
West Virginia	The predominant aggregates consist of a medium limestone, except along the Kana where medium-hard to hard river aggregates are used.
Wisconsin	The southern section of the state contains medium-soft limestone and gravel aggregates. The north has a medium-soft glacial aggregate.
Wyoming	Medium to medium-soft stone and crushed rock are encountered throughout the state.



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