


# What Is Aggregate And How Many Types of Aggregates?

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## First, What Is Aggregate?

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Aggregate is a granular material that act as skeleton and filling components in concrete and mortar, such as manufactured sand, natural sand, gravel, crushed stone and recycled concrete etc. Aggregate has a wide range of application in construction and other industries.



## Second, How Myany Types of Aggregates and How To Classify?

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Aggregates as the collection of loose materials, its types can be classified according to its its source, aggregate size and its aggregate density as follows 3 categories:

### 1.Aggregate Types On The Basis Of Sources

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According to aggregate source, it can be divided into natural aggregate, artificial aggregate and recycled concrete.

**Natural Aggregate:**It is composed of natural rock aggregate, such as sand, pebble, gravel, etc.

**Artificial Aggregate:**

- 1) Hot processed aggregate includes expanded shale, expanded vermiculite, etc.
- 2) Industrial bye-products include slag, iron slag, powder, etc.

**Recycled Aggregate:** It refers to broken concrete, broken clay brick, etc.

## 2. Aggregate Types On The Basis Of Aggregate Sizes

According to the size of aggregate, it can be divided into coarse aggregate and fine aggregate.

**Coarse aggregate:** It refers to rock particles larger than 5 mm, such as pebbles and gravels, usually obtain by crushed rocks.

**Fine aggregate:** It refers to rock particles ranges from 0.16 mm to 5 mm, such as river sand, mountain sand and sea sand.

Type	Fineness Modulus	Particle Diameter (mm)
Coarse Sand	3.7-3.1	>0.5
Medium Sand	3.0-2.3	0.5-0.35
Fine Sand	2.2-1.6	0.35-0.25
Extra Fine Sand	1.5-0.7	<0.25

## 3. Aggregate Types On The Basis of Aggregate Density

According to the density of aggregate, it can be divided into 3 kinds: normal aggregate, lightweight aggregate and heavyweight aggregate.

**Normal Aggregate:** It refers to aggregate with density between 2500 and 2700 kg/m<sup>3</sup>, such as gravels, sand and crushed stone.

**Lightweight Aggregate:** It refers to aggregate with density between 0 and 1000 kg/m<sup>3</sup>, such as ceramsite, calcined shale, expanded vermiculite, expanded perlite, foamed plastic particles.

**Heavyweight Aggregate:** It refers to aggregate with density of 3500-4000kg/m<sup>3</sup>, such as iron ore, barite, etc.



## | Quality Of Aggregates

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1. The aggregate should be hard, clean and well graded; the fineness modulus of artificial sand should be in the range of 2.4-2.8, and that of natural sand should be in the range of 2.2-3.0.

2. The moisture content of aggregate should be stable. The moisture content of artificial sand should not exceed 6%. If necessary, accelerated dewatering measures should be taken.

Usually, gravel aggregate needs to be mined and processed, and the gravel aggregate plants mainly contain 4 parts: feeding system, conveying system, crushing system and screening system. Making aggregates need suitable production line.