

Tire Derived Aggregate (TDA) - Type A and Type B Material Specification

ASTM defines two basic types of TDA used in engineering applications, Type A and Type B; and classes of fill associated with them (Class I and Class II). Type A and Type B are size classifications that are used for different applications. Class I and Class II describe lift thicknesses of the fill as defined by ASTM 6270-08 Section 6.11.1.

Class I fills describe TDA layers that are less than 1 meter in height and Class II fills describe TDA layers that are between 1 and 3 meters high. Class I fills have a maximum of 50 percent (by weight) passing the 38-mm sieve and a maximum of 5 percent (by weight) passing the 4.75-mm (no. 4) sieve (ASTM 6270-08 Section 7.1.2). Class II fills have a maximum of 25 percent (by weight) passing the 38-mm sieve and a maximum of 1 percent (by weight) passing the 4.74 (no. 4) sieve (ASTM 6270 Section 6.10.4). Typically Type A material is used in Class I fills and Type B is used in applications requiring a Class II fill designation.

Type A material is roughly 3 to 4-inch (75-100-mm) in size. Type A will have a maximum dimension measured in any direction of 200mm, 100% of Type A TDA will pass through the 100-mm square mesh sieve and a minimum of 95% passing the 75-mm square mesh sieve. Additionally, a maximum of 5% (by weight) shall pass through the 4.75-mm (No. 4) sieve though. One ton of Type A is made of approximately 100 tires passenger tire equivalents (PTE) and has a volume of 1.4 cubic yards. The in-place density is 45-50 pounds per cubic foot (pcf) and the permeability is more than 24 in/min (1 cm/sec).

Type B material is roughly 6 to 12-in. (150-305-mm) in size. All of the material shall be no bigger than 450-mm max dimension and 90% is smaller than a 300-mm max dimension. No more than 25% should pass 37.5-mm square mess sieve and a maximum of 1% passing the 4.57-mm (no. 4) sieve. At least one sidewall will be removed from the tread of each tire. A minimum of 75% (by weight) shall pass the 200mm square mesh sieve and a maximum of 50% (by weight) shall pass the 75mm square mesh sieve and a maximum of 25% shall pass the 38mm square mesh sieve and a maximum of 1% shall pass the 4.75mm sieve.

One ton of TDA is made of approximately 100 tires (PTE, passenger tire equivalent) and has a volume of 1.5 cubic yards. The in-place density is 35-50 pcf and the permeability is more than 24 in/min (1 cm/sec). Type B is often used as a lightweight backfill for retaining walls and embankment construction on weak soils. Type A TDA is often utilized in landfill leachate and gas collection and removal systems. TDA is used as an alternative to geofoam, pumice, and gravel. The classes of fill were developed to regulate TDA lift thicknesses due to the possibility of internal heat generation in TDA fills.