

C & S Brand Coal and Anthracite Coal as Filter Media

Coals can be ranked by a classification system based primarily on carbon content, as in ASTM Designation D 388-88:

In the Standard Classification of Coals by Rank, the term "anthracite" is used for coals forming a class which is high in carbon content. C & S Filter Coal is made from a raw material which is classified as a bituminous coal, which has a lower carbon content. C & S Brand Filter Coal has a history of performance over the last 10 years which substantiates its uniqueness as a filter media for water treatment. Prior to the development of C & S Filter Coal, anthracite coal was traditionally specified for filter media, primarily because of the reputation that some of the deposits of this class of coal had for hardness. This historical usage of anthracite coal is reflected in the Standard for Filtering Material published by the American Water Works Association, AWWA B100-89, in that it only lists requirements under the terms anthracite coal and silica sand. The Standard does not give a requirement for carbon content.

C & S Filter Coal complies with all requirements listed for anthracite coal by the Standard, except that it is not an anthracite coal due to its lower carbon content. The requirements satisfied include specific gravity, acid solubility and hardness (abrasion resistance).

The ultimate test of how the properties of a raw material contribute to its suitability for use as a filter media is to evaluate actual performance of the finished media itself, particularly under the intended service conditions. The main criteria that are of importance are the durability of the media to resist abrasion and breakdown (attrition) due to repeated applications of the backwashing process, and chemical stability against leaching of material and chemical attack by the liquid being filtered. Other relevant criteria are the surface texture and the particle shape of the grains.

C & S Filter Coal has been subjected to extensive evaluation by several of the largest water authorities in Australia. This has confirmed its abrasion resistance, durability and stability. These authorities include the Sydney Water Corporation and the Hunter Water Corporation. It has also been evaluated and approved by the Hong Kong Water Supplies Department.

Results obtained from use in many full scale plants confirm that C & S Filter Coal performs particularly well as a filter media.

While matching the durability of anthracite coal, C & S Filter Coal has advantages over anthracite coal filter media in other areas. These are its rougher surface texture which assists floc attachment (and build up of surface coatings such as manganese dioxide if required), a more consistent particle shape and its superior grading curve.

Examples of use cases where plants have been upgraded by removing the anthracite coal filter media originally installed and replacing it with C & S Brand Australian Filter Coal with a more suitable particle size grading curve.