

Perlite for use in Well Cements

As a well cementing material, perlite concrete is lightweight, insulating, and less costly.

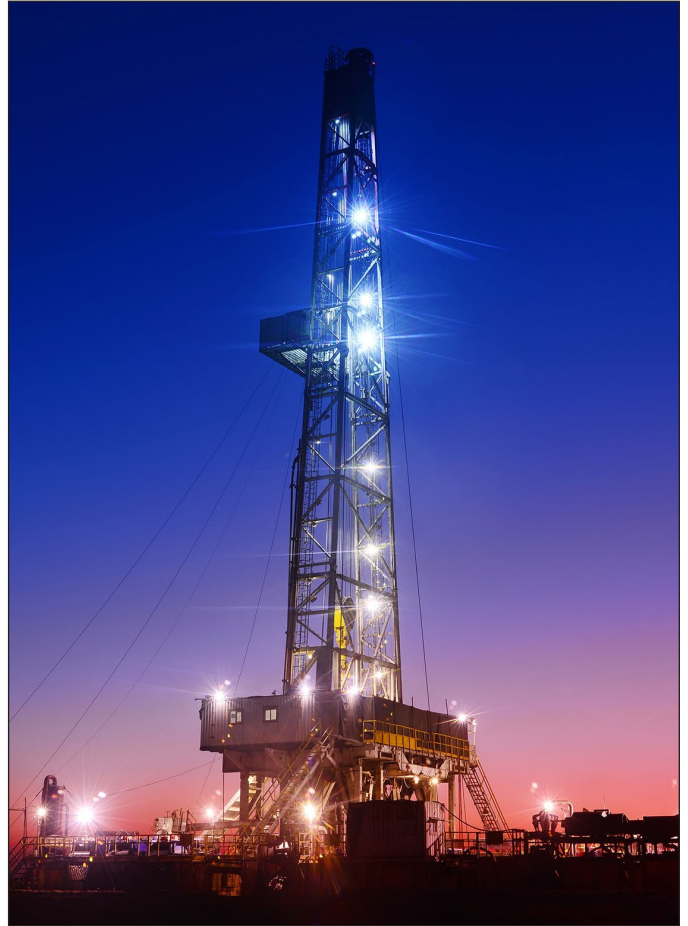
The physical character of expanded perlite lends itself to a variety of special purposes—including as a constituent in well cement. *For a detailed explanation of perlite expansion see PDF: Why Perlite Works.*

Well Cementing

A lubricating mud consisting of water, clay, pozzolans and other materials is used to facilitate drilling of oil, gas, water and geothermal wells. This lubricating mud is forced out through the bottom of the drill casing and the space between the well bore and the casing is cemented to prevent the intrusion of corrosive waters and other contaminants into the well.

Why Perlite Cement

Well cementing materials such as diatomaceous earth, pozzolan, fly ash, and glass beads do not have the lightweight properties exhibited by perlite concrete unless concentrations of bentonite or gel, as it is referred to, are added to the cement. A disadvantage of large concentrations of gel is that they are not compatible with heat. Because perlite cement is not affected by heat and little material is lost in cementing

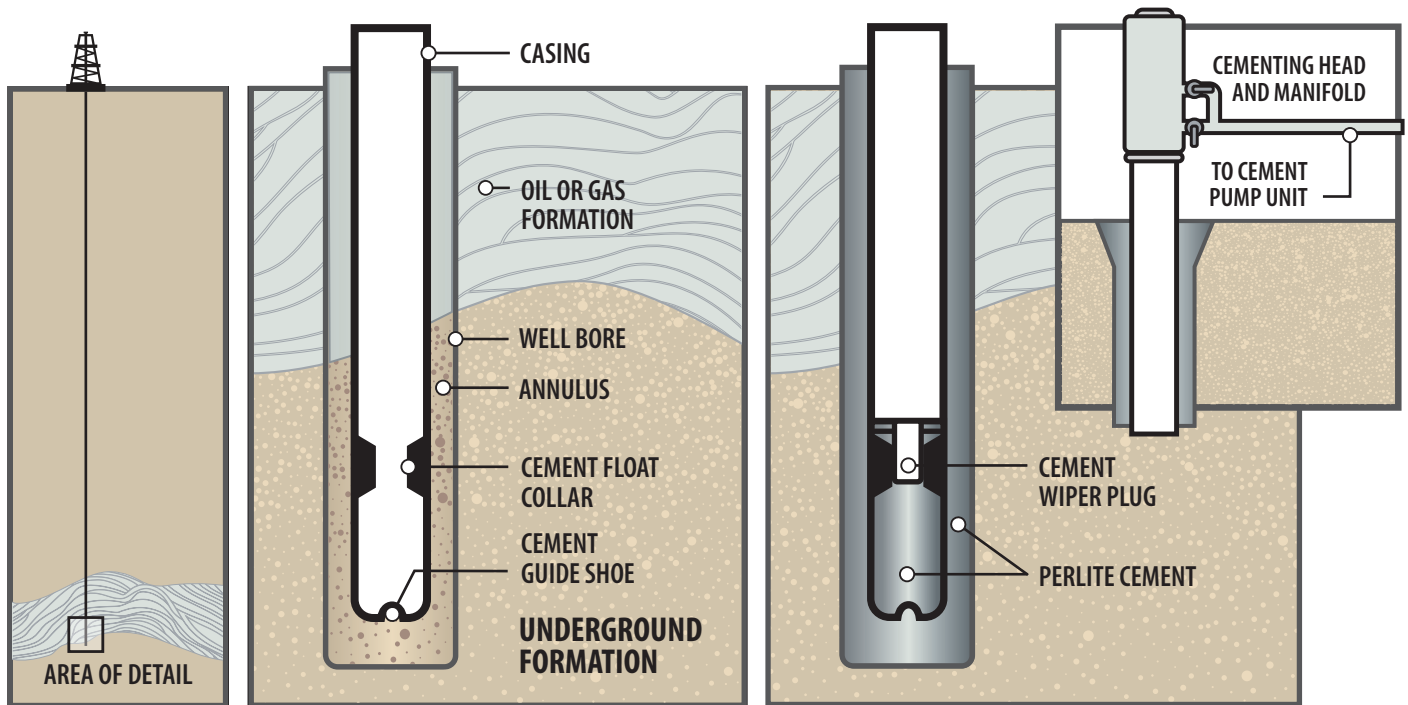


Perlite and cement powder are combined using transit mixers. A high volume, low pressure jet mixer adds water and injects the mixture into the well.
(see illustration, page 2)



photo courtesy of Liquid Gold Well Service, Inc

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TYPICAL PERLITE WELL CEMENT AGGREGATE SCREEN SIZE

U.S. MESH	I.S.O. (mm)	% PASSING SIEVES
8	2.38	85–100
16	1.18	40–85
30	0.600	20–60
50	0.300	5–25
100	0.150	0–10

TYPICAL PERLITE DENSITY

7.5 - 12 lb/ft³ (120 - 192 kg/m³)

operations due to its ability to bridge voids, perlite cement provides a more effective and less costly well cement. The dry weight of perlite is only 8 lb/ft³ (128/kg/m³) as opposed to 25–100 lb/ft³ (400–1600 kg/m³)—the dry weight of the other materials.

For more on perlite in concrete applications, see PDF info sheet: [Overview of Perlite Concrete](#).

Advantages of Using Perlite Well Cement

- Larger yield, lighter density (50/50 mixture by volume)
- Aids in bridging & seals fractures more quickly
- Insulating qualities & heat compatible
- Excellent fluid loss characteristics
- Lower hydrostatic pressure on surrounding formations

