

# Sawdust used as fine aggregate replacement in ordinary concrete

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Academic year: 2015-2016.

fibers of sawdust which are bigger than the sand's particles are working in the same way like the armature in concrete. This could be affirmed because after the test for determined the flexural strength was made, we could see the interior structure of the hardened concrete after 28 days. The sawdust's particles prevent the development of cracks. And the ones which are smaller will create a lower porosity.

5. Regarding thermal conductivity here we obtained some unexpected results. The values of thermal conductivity coefficient are smaller than an ordinary concrete even if the specimens have a bigger density than an ordinary concrete SD0. It is known that the thermal conductivity is directly proportional with density. But also it is know that the wood, in general, is a poor conductor of heat because of his porous structure. It can be said that once sawdust is added the coefficient decrease against the reference concrete SD0 and the concrete with addition of sawdust is a very good material for thermal insulation.

6. The best percentage of sawdust used to substitute fine aggregates in composition of the concrete, considering all the tests made, is 20%. This has a better compressive strength, flexural strength, a better drying shrinkage, a very good relation between apparent density, porosity and absorption of water and also for thermal conductivity proprieties. The only thing that the sawdust influences in a negative way is workability of fresh concrete. But as I have mentioned above this type of concrete does not have a wide area of use, but if there are made others concrete recipes comparable to a more resistant concrete maybe will reach a suitable percentage of sawdust which leads to a concrete use for casting pillars and concrete slabs. Also this thing leads to a improvement of construction industry, an environmental rescue; with regards to costs, the price of sawdust per sack in comparison with sand is also lesser than usual since sawdust already is waste. It is known that one of disadvantages of concrete is the aspect. When it comes to surface texture, sawdust produces a light brown surface color that slightly resembles recycled paper. You can say that sawdust added in concrete gives the illusion of old wallpaper.

## ACKNOWLEDGEMENTS

The author appreciates the support received from the Basque Regional Government through IT781-13 and also is thankful to the Precast Company Alberdi S.A., for providing the materials used throughout the work.

The investigation was made with the support of PhD student Maggi Isabel Madrid Guerrero and Associate Professor Jesús Cuadrado Rojo.