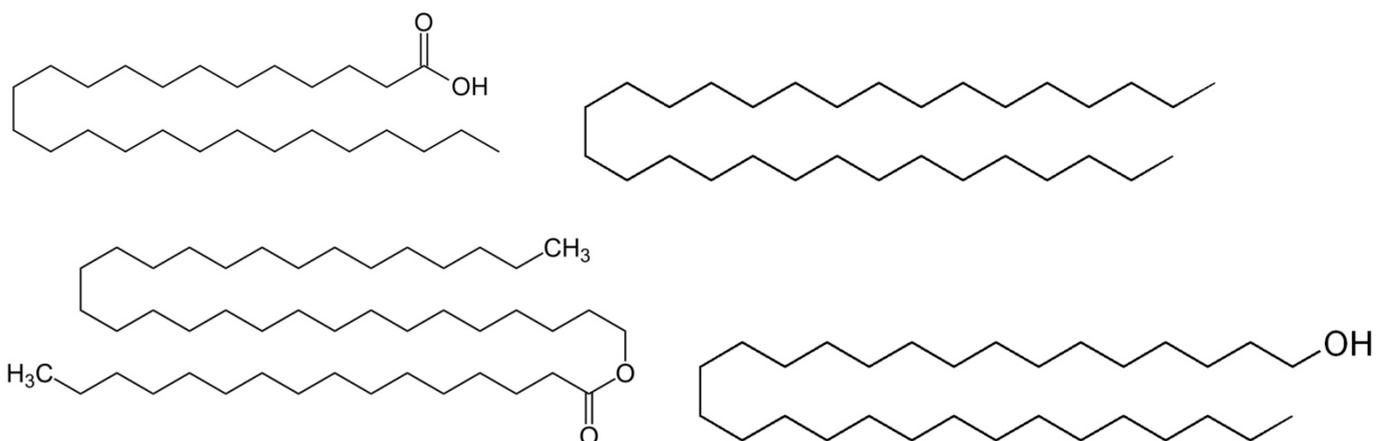




Bees collect these freshly minted flakes in their mandibles and begin to assemble their new home from scratch. In the sense that individual honey bees are short-lived (4 weeks in spring and summer), while the *hive* might stay alive with bees and intact for many years, the composite group, *the colony in its hive*, is considered the relevant being, the *superorganism*. In this sense, the extensive waxworks - brood comb and honey comb - might be considered a living *tissue*. Wax comb of a typical hive contains more than 150,000 cells.



Composition of wax is complex, being comprised of several major constituents and nearly 300 minor components. Four long chain fatty acids: **cerotic acid**, **hentriacontane**, **myricin**, and **triacontanol** are dominant:





The unique physical properties of beeswax allow it to be crafted (*by insects!*) into the remarkable architectural masterpiece of the comb. Beeswax is considered a liquid, with two transition points: one at 77 deg. F, where it becomes pseudo-crystalline, and another at 104 deg. F, at which temperature it becomes amorphous and more free-flowing. Bees working wax and building comb can *and do* heat themselves up to 109 deg. F, selectively making use of the precise geometries that result *when semi-liquid cylinders stacked together are heated then allowed to cool in place*: thus are formed the perfect 120 degree angles and 0.07 mm walls of the hexagonal cells of the honeycomb. Gravitational sensors - hairs surrounding leg joints - allow orientation of the vertical comb on a plumb line; individual cells are set with a slightly upward tilt.



For additional info and references, go to imagesays.com -> beeswax