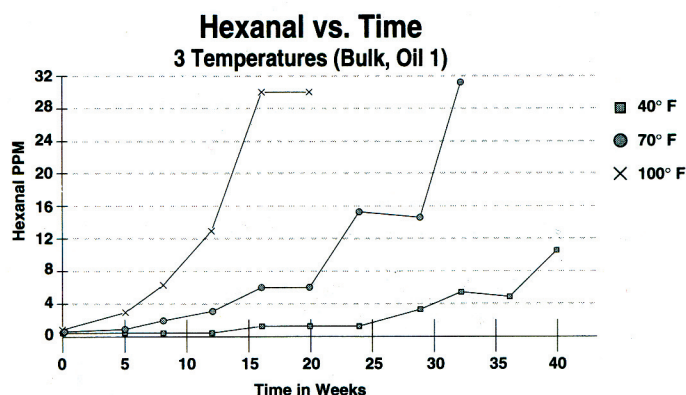


Temperature affected the development of unacceptable chemical and sensory results in the roasted sunflower kernel stored without protection from oxygen. Cold storage was effective in delaying the development of rancidity in roasted sunflower kernel stored in bulk. Hexanal values stayed below 6 ppm until 28 weeks. Sensory evaluation indicated samples were approaching the minimum fresh flavor score and had exceeded the maximum storage flavor score by 36 weeks. Cold storage, therefore, appears to prolong shelf stability to between 28 to 36 weeks.

Roasted sunflower kernel stored at 100° F showed increased hexanal values at 5 weeks and hexanal values above 6 ppm at 8 weeks for roasted kernel. The expert sensory panel scores indicated unacceptable levels of storage flavor for roasted sunflower kernel stored at 100° F, regardless of the roasting oil used. Roasted sunflower kernel stored without protective packaging should avoid elevated temperatures and low temperatures are an effective means to prolong shelf life.

FIGURE 2: Low temperature protects unpacked roasted sunflower kernel from oxidative rancidity.



RAW SUNFLOWER KERNEL

Raw kernel analyzed at 52 weeks maintained acceptable levels of the chemical evaluations measured. Peroxide values did not exceed 3 meq/kg and hexanal values were less than 1 ppm. Free fatty acid values increased during the study period. Free fatty acid values for raw kernel stored in bulk at 100° F was 0.46 g/100 g fat.