

Pink Color in Cooked Meat

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Meat color is frequently used by consumers as an indicator of raw meat freshness and the doneness of cooked meat. An educational program sponsored by the United States Department of Agriculture is urging consumers to cook hamburger patties until they are brown in the middle. Certain conditions, however, may cause cooked meat to appear pink in color even though the meat has been thoroughly cooked.

Cured meat products such as ham and frankfurters have a pink color due to the addition of nitrite, a commonly used ingredient in processed meats. Many vegetables, including carrots, celery and onions, contain nitrates. These nitrate containing vegetables are often mixed with meat to make meatloaf, meatballs or other meat and vegetable combinations. If the meat and vegetable mixture is refrigerated overnight before cooking, the nitrates in fresh vegetables can be chemically changed to nitrite by the action of bacteria found normally on meat. After cooking to a minimum internal temperature of 160F, the meat mixture may appear pink due to the nitrite. This will be especially noticeable around the vegetable pieces since these areas will have the highest concentrations of nitrite.

Some recipes call for combining ham and fresh ground meat together to make a meat entree. Adding as little as five percent ham to a fresh meat mixture may lead to the entree developing the pink color characteristic of cured meat upon cooking. On rare occasions, the water used in a meat recipe may be contaminated with nitrates. This also can lead to the development of a pink color in thoroughly cooked meat.

Whole muscle cuts of meat cooked directly over a wood fire may develop a red color on and just below the meat surface. Burning wood releases oxides of nitrogen. As a result, meat is constantly bathed with these oxides through contact with wood smoke during grilling. Restricting air flow to burning wood by using an enclosed grill will increase the amount of nitrogenous oxides generated, increasing the possibility of red color development.

Meat cooked in a gas oven also may develop a red surface if there is incomplete combustion of the gas used to heat the oven. To correct this problem, gas burners should be adjusted so that sufficient levels of oxygen are available to achieve complete combustion of the heating gases.

Regardless of the cause of pink color development in cooked meat, you can determine if meat has been adequately cooked by measuring the meat temperature with a meat thermometer. To prevent foodborne illness due to bacteria, ground meat must be cooked to an internal temperature of 160F. Whole muscle cuts of beef are considered rare when cooked to 140F, medium at 160F and well done at 170F. Your local extension office is a good source for more information on how to cook meat.