

### Colour stability of heme

- The purplish-red colour of meat is caused by myoglobin.
- In myoglobin, iron is in the +2 oxidation state. When it is oxidized, the oxidation state of the iron changes from +2 to +3.
- In the +3 oxidation state, it is called metmyoglobin (MMb) and has an undesirable brown colour.
- The stability of colour and the rate of brown MMb formation can be minimized if the meat is stored in oxygen free conditions by using packaging films with low gas permeabilities.
- Air is removed from the package and a storage gas (100% CO<sub>2</sub>) is injected.

In the pictures below, the red meat on the left has iron with a +2 oxidation state. On the right, the iron has a +3 oxidation state which has a brown colour due to the presence of metmyoglobin (MMb).

