# Dimethyl Sulfide (DMS)

- **Perceived As:** Sweetcorn, Creamed Corn, Cabbage, Canned/Cooked Vegetables, Oysters Sea Vegetables, Tomato Sauce
- **Approx. Flavor Threshold:** 0.025mg/l, this sample 0.4 mg/L
- **Importance:** Considered an off flavor in most beer, but can play some role in the flavor profile of some pale lagers, German and American pilsners, and cream ales.
- **Effect of Aging:** Likely will decrease with age.
- **Caused By:** DMS comes from a sulfur-based organic compound (S-methyl methionine, or SMM) produced when grain germinates during the malting process. Six row lager malts and Pilsner malts have the highest levels of this compound. As do some adjunct grains such as corn. SMM changes to DMS during the boil. It can also come from wild yeast or bacterial contamination during fermentation.

## How To Avoid/Control:

- Reduce use of pilsner malts, lager malts, and corn adjuncts.
- Higher moisture content in malt increases the SMM, so make sure you store your malt in a dry, cool place.
- Over-sparging can increase DMS.
- DMS is a volatile compound and the easiest way to get rid of it is to drive it off with a vigorous boil. Always use a big enough kettle to allow for an energetic boil without having to worry about boil over. And always leave the lid off!
- Ensure your vigorous boil is long enough. Boil for at least 60 minutes and, if using lager or pilsner malt, consider upping it to 90 minutes.
- Also try your best to crash cool your boiled wort as quickly as possible. DMS is produced at warm non-boiling temperatures, so you don’t want to leave your wort in that temperature-range long.
- As always, practice good sanitation.

# Ethyl Acetate

**Descriptors:** Solvent-like, nail polish remover (at high concentrations), Fruity, pear or apple like at lower concentrations

**Common sources**: Fermentation product, wort composition, yeast health

**Concentration**: 120 mg/L, threshold in beer: 20-40 mg/L

A fermentation product mainly determined by yeast health and strain. Unavoidable, and may be a key part of certain styles, but incomplete fermentation, wild or unhealthy yeast could cause elevated levels. To limit ensure healthy fermentation, good sanitation and choose a low ester producing yeast strain.