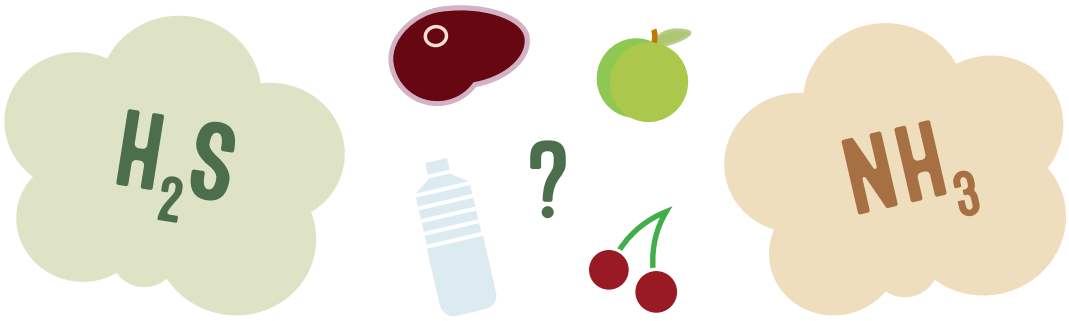
Aroma Chemistry

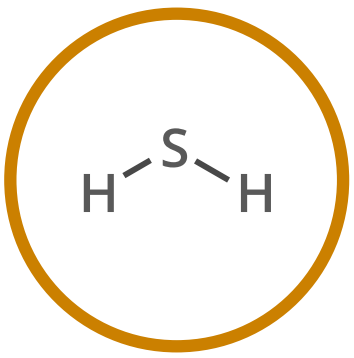
THE SMELL OF GARBAGE

WHAT MAKES GARBAGE STINK?

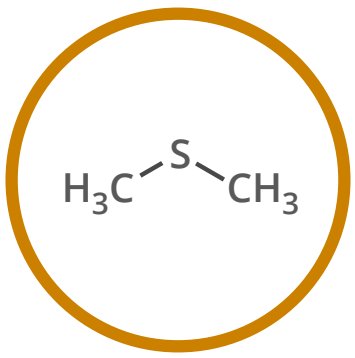


Lots of different things can end up in your bin, including packaging, food, and garden waste. The degradation of these, followed by their consumption by bacteria, mites, fungi, and parasites, can produce a large number of chemical compounds, many of which contribute the characteristic stench of garbage. Below are some of the stinky culprits!

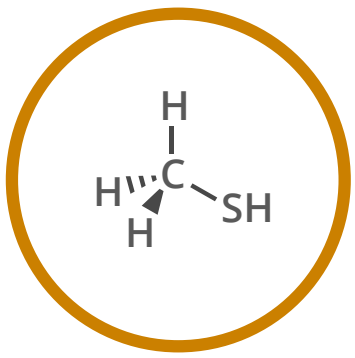
A SELECTION OF ODOROUS COMPOUNDS IN GARBAGE



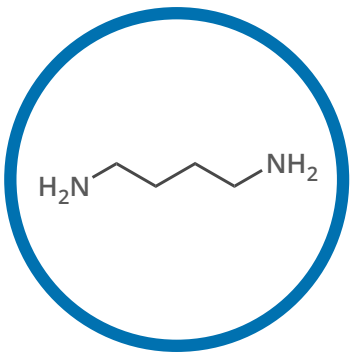
HYDROGEN SULFIDE
rotten eggs



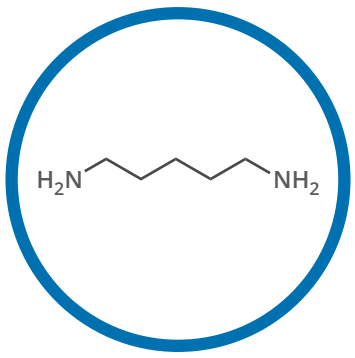
DIMETHYL SULFIDE
rotten cabbage



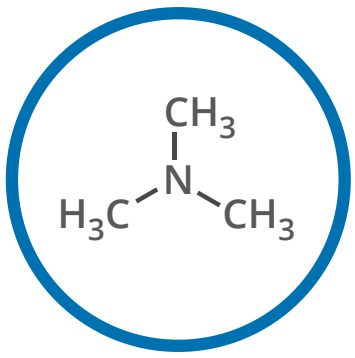
METHANETHIOL
rotten cabbage



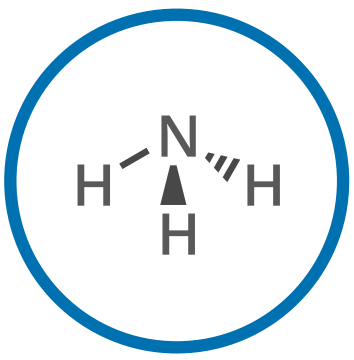
PUTRESCINE
rotting meat



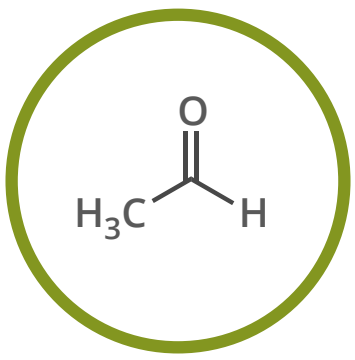
CADAVERINE
rotting meat



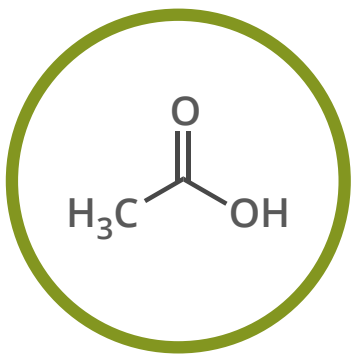
TRIMETHYLAMINE
fishy



AMMONIA
medicinal, pungent



ACETALDEHYDE
fruity, pungent



ACETIC ACID
sour, vinegary

SULFUR-CONTAINING

Sulfur-containing compounds are produced during anaerobic breakdown of food waste. They have a low odour threshold, meaning that only very small amounts of them need to be present for us to be able to smell them. As a result they make a significant contribution to the unpleasant smell of garbage.

NITROGEN-CONTAINING

Ammonia is produced in large quantities, but has a high odour threshold so doesn't contribute massively to bin smell. Trimethylamine's odour threshold is very low, as are those of putrescine and cadaverine, produced by rotting meat. Though much less of them is produced, their impact on the smell is much greater!

OTHER COMPOUNDS

Many other compounds contribute, including aldehydes, carboxylic acids, and terpenes. Often these compounds, and those mentioned above, are produced during anaerobic decomposition (where there is not an adequate supply of oxygen). Some smell good in isolation, but bad when mixed with other odour compounds!