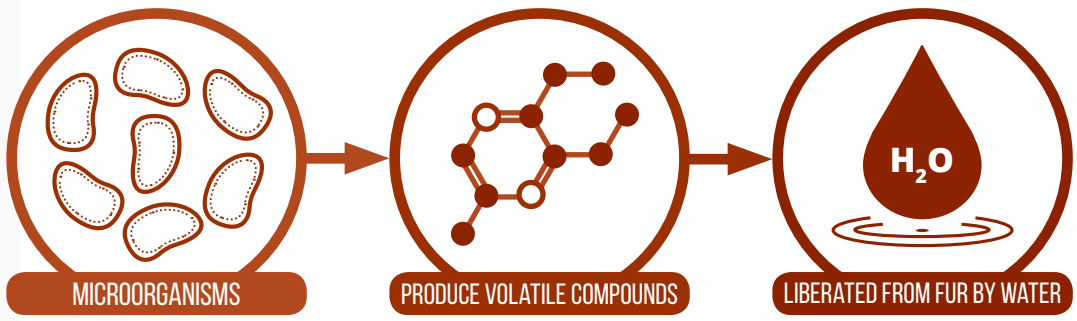
Aroma Chemistry

THE SMELL OF WET DOG

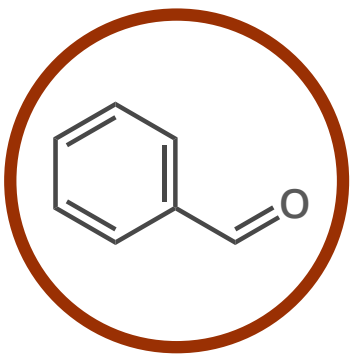
THE SOURCE OF DOG HAIR COMPOUNDS



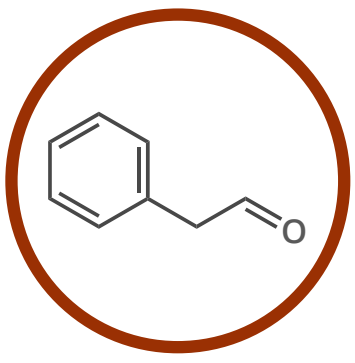
Wet dog smell stems from microorganisms living in dog hair. They produce bad-smelling volatile organic compounds. Adding water helps these compounds break free from the hair as the water evaporates, increasing their concentration in the air.

COMPOUNDS WITH INCREASED CONCENTRATIONS IN WET DOG HAIR

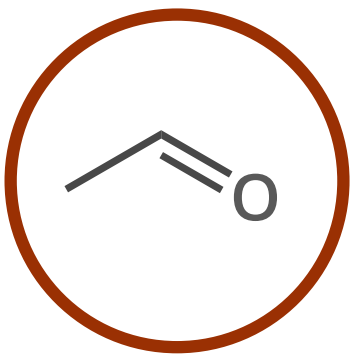
The smell of dogs is complex: multiple chemical compounds contribute which individually do not have odours associated with dog smell, but produce it in combination. A pilot study found emitted concentrations of some compounds increased when dog hair was wet. Those shown on the top row below showed greater increases than those on the second row.



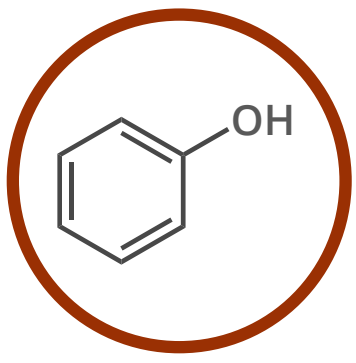
BENZALDEHYDE
almond-like



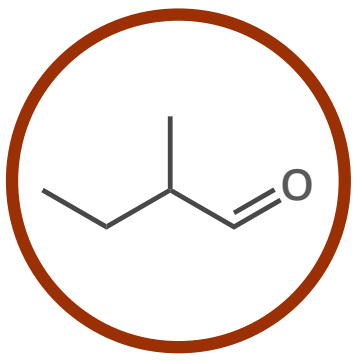
PHENYLACETALDEHYDE
honey/floral



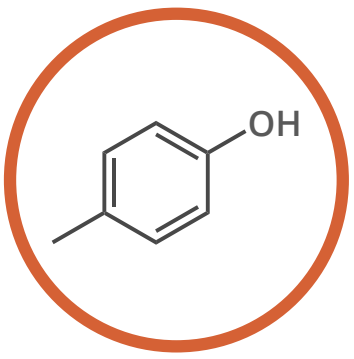
ACETALDEHYDE
fruity/musty



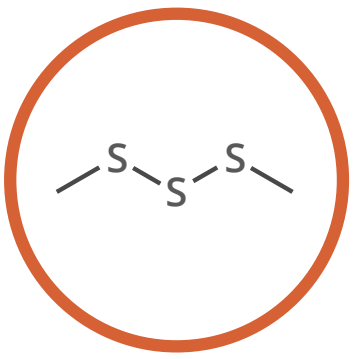
PHENOL
medicinal



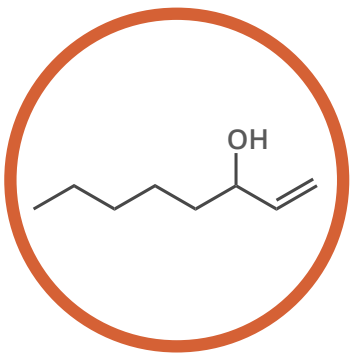
2-METHYLBUTANAL
musty/nutty



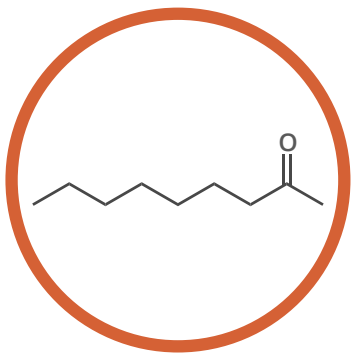
p-CRESOL
faecal



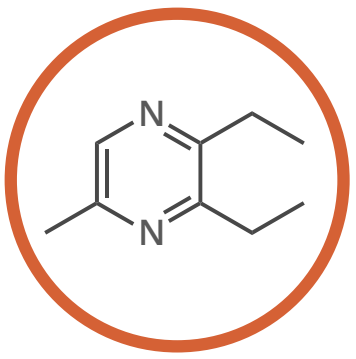
DIMETHYL TRISULFIDE
sulfurous



1-OCTEN-3-OL
mushroom-like



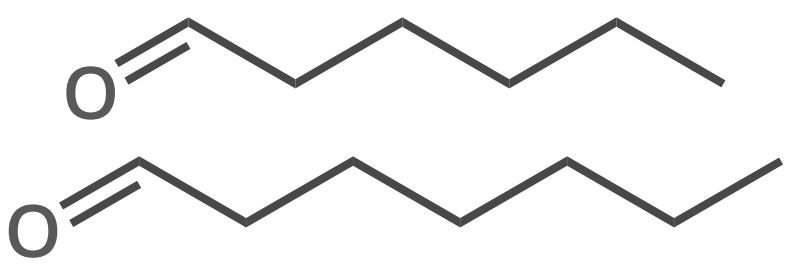
2-NONANONE
fruity



2,3-DIETHYL-5-METHYLPYRAZINE
earthy

DECREASING CONCENTRATIONS

Not all compounds increased in concentration in wet dog hair. A small selection decreased, including several straight chain aldehydes. The concentration changes between wet & dry hair suggest a probable chemical or biochemical reaction.



HEXANAL (TOP) & HEPTANAL (BOTTOM)