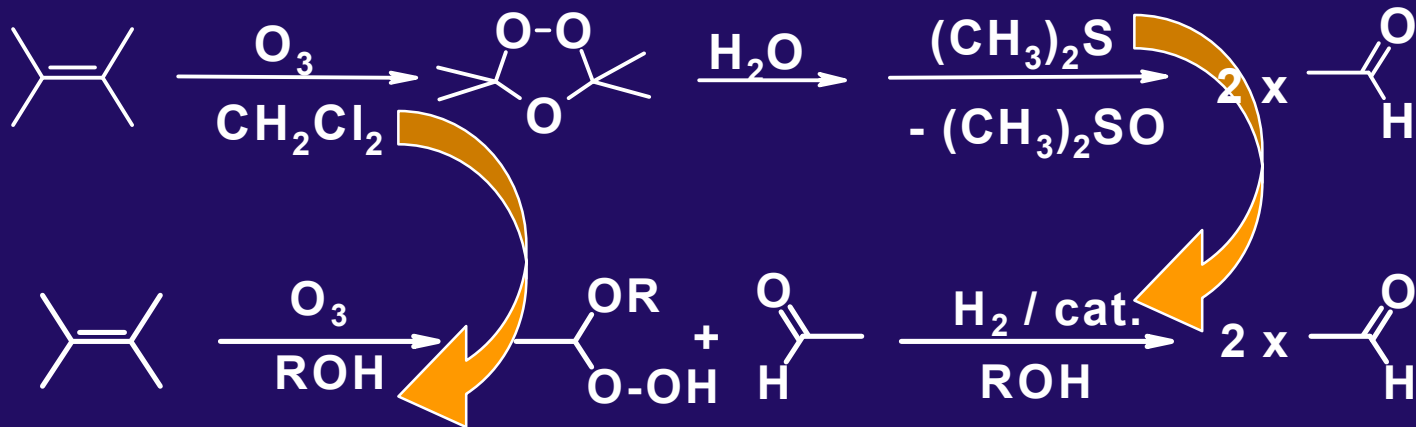


# Ozone as oxidant for fine chemicals

Ozone reactions are industrially feasible...

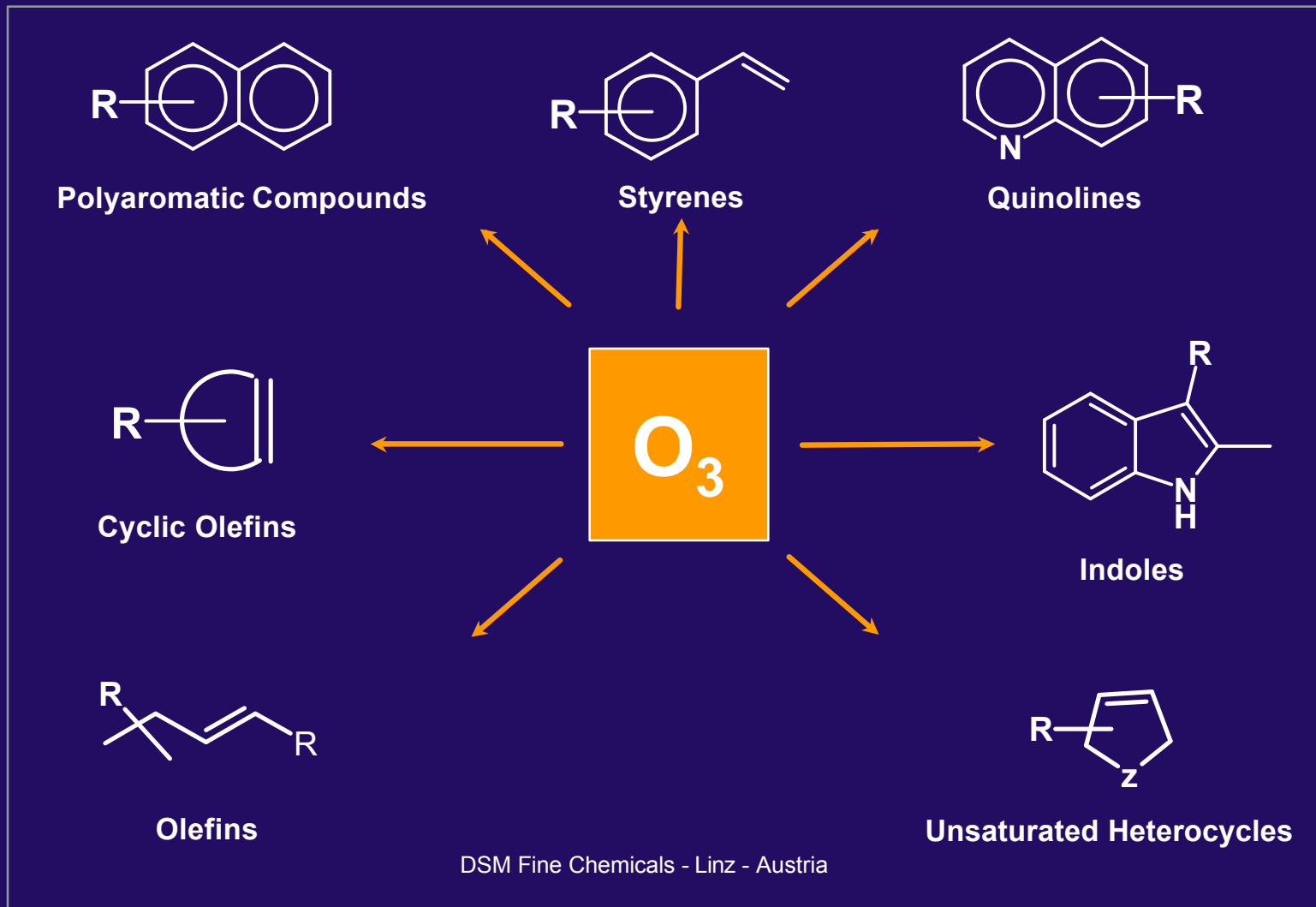
*Lab recipe:*



... and are performed in a variety of solvents.

These solvents interfere with the reaction mechanism and improve process safety.

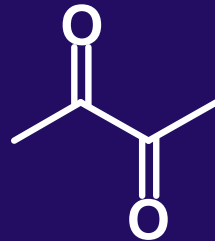
# A variety of C-C bonds has been subjected to ozonolysis on a pilot plant or plant scale



# Ozone: Suitable raw materials



Aldehyde, Alcohol, Acid, Ester,  
Acetal, reductive amination



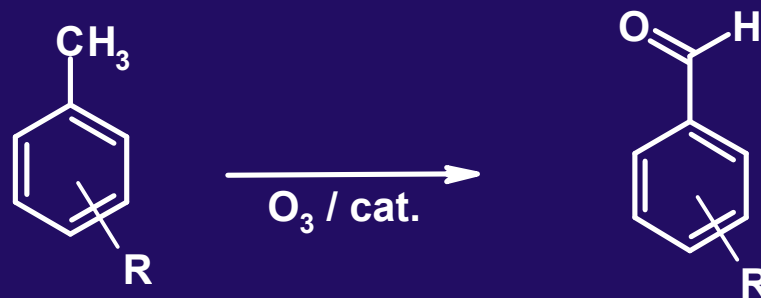
**P and S**



**PO and SO or SO<sub>2</sub>**  
DSM Fine Chemicals - Linz - Austria



# DSM: Metal catalyzed oxidations



- R = para-Br
- 80 % isolated yield
- 99 % conversion

Based on the development of a novel oxidation method in the presence of ozone and a catalyst **toluene derivatives** are oxidized in nearly quantitative yields to the corresponding aldehydes.