DALES percentage-chemistry instructions

The DALES percentage-chemistry functionality allows for a very simplified representation chemical conversions. This functionality is designed for modeling gaseous ammonia, where chemical conversion from gas to aerosol is sometimes represented with a constant conversion rate in % h-1, e.g. in the OPS model ([Sauter et al. 2020](https://www.rivm.nl/sites/default/files/2020-10/ops_v5_0_0_0.pdf)).

# Methodology

The additional loss/source term as a result of the percentage-chemistry functionality is added to the scalar tendency in tstep.f90, following , with being the scalar tendency in ppb s-1 (svp in DALES), Fpc is the chemistry factor in % h-1 (pc\_chemrate in DALES) and C is the scalar concentration in ppb (svm in DALES).

# Inputs:

**Namoptions:**

* lprec\_chem:  
  .true. if you want to use the functionality
* pc\_chemrate:  
  Array with the constant percentage chemical conversion rate.
  + The array has length nsv, pc\_chemrate(nsv), with nsv being the number of scalars defined in scalar.inp.
  + For each scalar, the default value is 0
  + In namoptions, define the conversion rate in ppb h-1 for the specific scalar on which the conversion is applied. Example:
    - pc\_chemrate(2) = -0.05  
      pc\_chemrate(5) = -0.05  
      Here, scalar nr 2 & 5 will have a 5% h-1 loss of concentration