

# Namelist statement

Few things to know about the namelist statement :

The NAMELIST statement defines a group of variables or arrays. It specifies a group name, and lists the variables and arrays of that group. The namelist starts with a & directly followed by the name of the namelist and ends with the / character. For instance :

```
&Fluid_Properties      Reference_Dynamic_Viscosity= 1.84D-05, ! a comment
can be written here
                        Reference_Density= 1.19, Reference_Temperature= 293.0,
Prandtl= 0.72 /
```

Here the variable Reference\_Density in the namelist Fluid\_Properties is set to 1.19. In input3d.dat, a namelist or some variables in a namelist can be omitted according to the context. For instance, for a numerical simulation without heat transfer, the namelist Fluid\_Properties can be reduced to :

```
&Fluid_Properties      Reference_Dynamic_Viscosity= 1.84D-05,
Reference_Density= 1.19 /
```

This allows us to define the simulation setup only from the useful data. If they are not set in the file input3d.dat, the data are initialized with default values.

The entire set of input data (default and user's values) are written in the file check\_namelist\_data.dat by sunfluidh at the beginning of each run.



**BEWARE :** A same namelist can be used several times in the data file in order to initialize different physical quantities belonging to a same type. For instance, if you want to initialize the physical properties of different species, you will use the same namelist (named Species\_Properties\_Namelist, see below) for each species. When a namelist could be used several times, the last must contains the variable End\_of\_Data\_Block = .true. in order to specify the end of the namelist series.

Example :

```
&Species_Properties      Species_Name = "H2" , .... /
&Species_Properties      Species_Name = "O2" , .... /
&Species_Properties      Species_Name = "N2" , ....., End_of_Data_Block =
.true. /
```

The first namelist contains the group of data describing the properties of the di-hydrogen, the second for the di-oxygen and the third for the Nitrogen. Only the last namelist contains the variable End\_of\_Data\_Block = .true. If only one species is initialized, the namelist must however contain the variable End\_of\_Data\_Block = .true.

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