siunitx-eng — set of engineering macros for siunitx*

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Released ?

1 Introduction

The package siunitx provides a nice set of commands for typesetting units; for exemple, to produce 1 kg, one would type `\SI{1}{\kilo\gram}`. What this extension siunitx-eng does, in the form of a configuration file for that package, is to use the package's `\DeclareSIUnit` macro to create units with meaningful, consistent names. The above example would be typeset with `\SI{1}{\massunit}` (to yield the identical 1 kg).

The advantages are twofold:

1. One does not have to type all slashes, and remembering all the syntax; a single english name will produce the desired output
2. We assure the units are consistent in the text (provided, of course, the data was obtaind in a consistent manner).

2 Options

This extension also sets some options, that, I think, are a better default (the text in brackets are the options passed to the package):

- fractions are always indicated with a symbol, like 1 m/s (and not with negative exponents, like $1\,\mathrm{m\,s^{-1}}$) (`[per-mode=symbol]`)
- follow the surrounding font settings (`[detect-all]`)
- group integer digits, but not decimal ones; compare 1 234 567.345678 with the default 1 234 567.345 678 (`[group-digits=integer]`)

3 Available macros

There are two basic unit types in siunitx-eng. First, there are units for common non-SI units, like poise , surface poise and atm . There are no special reasoning

`\poise`
`\surfacepoise`

for including these and not others; as I find myself running into other units, I will
\atm probably add them here.

All other macros follow the pattern \⟨*name*⟩`unit`, so they are self-explanatory. Table 1 lists all available macros and what they output. Notice that energy-based units can have `molar` at the beginning, indicating a molar base.

⟨*name*⟩	output
Basic units	
`mass`	kg
`molar`	kmol

Table 1: Available macros in the siunitx-eng extension

4 Implementation

<*package>

```
% basic configuration: use / for division, typeset in the current font, and group the digits in
\sisetup{
per-mode=symbol,
detect-all,
group-digits=integer}


% declare some common non-SI units
\DeclareSIUnit{\poise}{P}
\DeclareSIUnit{\surfacepoise}{sP}
\DeclareSIUnit{\atm}{atm}

% basic units
\DeclareSIUnit{\massunit}{\kg}
\DeclareSIUnit{\molarunit}{\kilo\mole}
\DeclareSIUnit{\timeunit}{\second}
\DeclareSIUnit{\lengthunit}{\meter}
\DeclareSIUnit{\energyunit}{\joule}
\DeclareSIUnit{\temperatureunit}{\kelvin}
\DeclareSIUnit{\pressureunit}{\Pa}
\DeclareSIUnit{\forceunit}{\newton}
\DeclareSIUnit{\powerunit}{\watt}


% immediate derived units
\DeclareSIUnit{\areaunit}{\square\lengthunit}
\DeclareSIUnit{\volumeunit}{\cubic\lengthunit}
```

*This file describes version ?, last revised ?.

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```
\DeclareSIUnit{\molarmassunit}{\kg\per\molarunit}

% mass-based units
\DeclareSIUnit{\densityunit}{\massunit\per\volumeunit}
\DeclareSIUnit{\massflowrateunit}{\massunit\per\timeunit}
\DeclareSIUnit{\massfluxunit}{\massflowrateunit\per\areaunit}

% energy units
\DeclareSIUnit{\specificenergyunit}{\energyunit\per\massunit}
\DeclareSIUnit{\specificheatunit}{\energyunit\per\massunit\per\temperatureunit}
\DeclareSIUnit{\specificentropyunit}{\specificheatunit}

% molar-based units
\DeclareSIUnit{\molarconcentrationunit}{\molarunit\per\volumeunit}

% energy units in molar base
\DeclareSIUnit{\molarspecificenergyunit}{\energyunit\per\molarunit}
\DeclareSIUnit{\molarspecificheatunit}{\energyunit\per\molarunit\per\temperatureunit}
\DeclareSIUnit{\molarspecificentropyunit}{\molarspecificheatunit}

% properties
\DeclareSIUnit{\diffusivityunit}{\areaunit\per\timeunit}
\DeclareSIUnit{\viscosityunit}{\pressureunit\timeunit}
\DeclareSIUnit{\interfacialtensionunit}{\forceunit\per\lengthunit}
\DeclareSIUnit{\thermalcondutivityunit}{\powerunit\per\lengthunit\per\temperatureunit}

% other
\DeclareSIUnit{\velocityunit}{\lengthunit\per\timeunit}
```

</package>