The **chemarr** package

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Abstract

Very often chemists need a longer version of reaction arrows (`\rightleftharpoons`) with the possibility to put text above and below. Analogous to amsmath's `\xrightarrow` and `\xleftarrow` this package provides the macro `\xrightleftharpoons`.

Contents

1 Usage

`\xrightleftharpoons`   This LaTeX package defines `\xrightleftharpoons`. It prints extensible arrows (harpoons), usually used in chemical reactions. It allows to put some text above and below the harpoons and can be used inside and outside of math mode.

The package is based on amsmath, thus it loads it, if necessary.
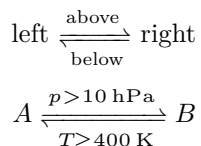
1.1 Example

```
1 ⟨*example⟩
2 \documentclass{article}
3 \usepackage{chemarr}
4 \begin{document}
5 \begin{center}
6   left
7   \xrightleftharpoons[\text{below}]{\text{above}}
```

```
 8   right
 9 \end{center}
10 \[
11   A
12   \xrightleftharpoons[T \geq 400\,\mathrm{K}]{p > 10\,\mathrm{hPa}}
13   B
14 \]
15 \end{document}
16 ⟨/example⟩
```

The result:

$$\text{left} \xrightleftharpoons[\text{below}]{\text{above}} \text{right}$$

$$A \xrightleftharpoons[T \geq 400\,\mathrm{K}]{p > 10\,\mathrm{hPa}} B$$

2 Implementation

```
17 ⟨*package⟩
```

Package identification.

```
18 \NeedsTeXFormat{LaTeX2e}
19 \ProvidesPackage{chemarr}%
20   [2006/02/20 v1.2 Arrows for chemical reactions (HO)]
21 \RequirePackage{amsmath}
```

The package amsmath is needed for the following commands:

> \ext@arrow, \@ifnotempty, \arrowfill@
> \relbar, \std@minus
> \@ifempty, \@xifempty, \@xp

\xrightleftharpoons In fontmath.ltx \rightleftharpoons is defined with a vertical space of 2pt.

```
22 \newcommand{\xrightleftharpoons}[2][]{%
23   \ensuremath{%
24     \mathrel{%
25       \settoheight{\dimen@}{\raise 2pt\hbox{$\rightharpoonup$}}%
26       \setlength{\dimen@}{-\dimen@}%
27       \edef\CA@temp{\the\dimen@}%
28       \settoheight\dimen@{$\rightleftharpoons$}%
29       \addtolength{\dimen@}{\CA@temp}%
30       \raisebox{\dimen@}{%
31         \rlap{%
32           \raisebox{2pt}{%
33             $%
34             \ext@arrow 0359\rightharpoonupfill@{\hphantom{#1}}{#2}%
35             $%
36           }%
37         }%
38         \hbox{%
39           $%
40           \ext@arrow 3095\leftharpoondownfill@{#1}{\hphantom{#2}}%
41           $%
42         }%
43       }%
44     }%
45   }%
46 }
```

\leftharpoondownfill@

```
47 \newcommand*{\leftharpoondownfill@}{%
48   \arrowfill@\leftharpoondown\relbar\relbar
49 }
```

2

\rightharpoonupfill@

```
50 \newcommand*{\rightharpoonupfill@}{%
51   \arrowfill@\relbar\relbar\rightharpoonup
52 }
```

```
53 ⟨/package⟩
```

3 Installation

3.1 Download

Package. This package is available on CTAN[1]:

CTAN:macros/latex/contrib/oberdiek/chemarr.dtx The source file.

CTAN:macros/latex/contrib/oberdiek/chemarr.pdf Documentation.

Bundle. All the packages of the bundle 'oberdiek' are also available in a TDS compliant ZIP archive. There the packages are already unpacked and the documentation files are generated. The files and directories obey the TDS standard.

CTAN:install/macros/latex/contrib/oberdiek.tds.zip

TDS refers to the standard "A Directory Structure for TeX Files" (CTAN:tds/tds.pdf). Directories with `texmf` in their name are usually organized this way.

3.2 Bundle installation

Unpacking. Unpack the `oberdiek.tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

```
unzip oberdiek.tds.zip -d ~/texmf
```

Script installation. Check the directory `TDS:scripts/oberdiek/` for scripts that need further installation steps. Package attachfile2 comes with the Perl script `pdfatfi.pl` that should be installed in such a way that it can be called as `pdfatfi`. Example (linux):

```
chmod +x scripts/oberdiek/pdfatfi.pl
cp scripts/oberdiek/pdfatfi.pl /usr/local/bin/
```

3.3 Package installation

Unpacking. The `.dtx` file is a self-extracting docstrip archive. The files are extracted by running the `.dtx` through plain TeX:

```
tex chemarr.dtx
```

TDS. Now the different files must be moved into the different directories in your installation TDS tree (also known as `texmf` tree):

```
chemarr.sty          → tex/latex/oberdiek/chemarr.sty
chemarr.pdf          → doc/latex/oberdiek/chemarr.pdf
chemarr-example.tex  → doc/latex/oberdiek/chemarr-example.tex
chemarr.dtx          → source/latex/oberdiek/chemarr.dtx
```

If you have a `docstrip.cfg` that configures and enables docstrip's TDS installing feature, then some files can already be in the right place, see the documentation of docstrip.

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[1]ftp://ftp.ctan.org/tex-archive/

3.4 Refresh file name databases

If your TeX distribution (teTeX, mikTeX, …) relies on file name databases, you must refresh these. For example, teTeX users run `texhash` or `mktexlsr`.

3.5 Some details for the interested

Attached source. The PDF documentation on CTAN also includes the `.dtx` source file. It can be extracted by AcrobatReader 6 or higher. Another option is `pdftk`, e.g. unpack the file into the current directory:

```
pdftk chemarr.pdf unpack_files output .
```

Unpacking with LaTeX. The `.dtx` chooses its action depending on the format:

plain TeX: Run `docstrip` and extract the files.

LaTeX: Generate the documentation.

If you insist on using LaTeX for `docstrip` (really, `docstrip` does not need LaTeX), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{chemarr.dtx}
```

Do not forget to quote the argument according to the demands of your shell.

Generating the documentation. You can use both the `.dtx` or the `.drv` to generate the documentation. The process can be configured by the configuration file `ltxdoc.cfg`. For instance, put this line into this file, if you want to have A4 as paper format:

```
\PassOptionsToClass{a4paper}{article}
```

An example follows how to generate the documentation with pdfLaTeX:

```
pdflatex chemarr.dtx
makeindex -s gind.ist chemarr.idx
pdflatex chemarr.dtx
makeindex -s gind.ist chemarr.idx
pdflatex chemarr.dtx
```

4 Catalogue

The following XML file can be used as source for the TeX Catalogue. The elements `caption` and `description` are imported from the original XML file from the Catalogue. The name of the XML file in the Catalogue is `chemarr.xml`.

```
54 ⟨*catalogue⟩
55 <?xml version='1.0' encoding='us-ascii'?>
56 <!DOCTYPE entry SYSTEM 'catalogue.dtd'>
57 <entry datestamp='$Date$' modifier='$Author$' id='chemarr'>
58   <name>chemarr</name>
59   <caption>Arrows for chemists.</caption>
60   <authorref id='auth:oberdiek'/>
61   <copyright owner='Heiko Oberdiek' year='2001,2006'/>
62   <license type='lppl1.3'/>
63   <version number='1.2'/>
64   <description>
65     Very often chemists need a longer version of reaction arrows
66     (<tt>\rightleftharpoons</tt>) with the possibility to put text
67     above and below.  Analogous to <xref refid='amsmath'>amsmath</xref>'s
68     <tt>\xrightarrow</tt> and <tt>\xleftarrow</tt> this package
69     provides the macro <tt>\xrightleftharpoons</tt>.  The package
```

```
70    requires amsmath.  To use it, <tt>\usepackage{chemarr}</tt>,
71    then <tt>\xrightleftharpoons[below]{above}</tt> .
72    <p/>
73    The package is part of the <xref refid='oberdiek'>oberdiek</xref>
74    bundle.
75  </description>
76  <documentation details='Package documentation'
77      href='ctan:/macros/latex/contrib/oberdiek/chemarr.pdf'/>
78  <ctan file='true' path='/macros/latex/contrib/oberdiek/chemarr.dtx'/>
79  <miktex location='oberdiek'/>
80  <texlive location='oberdiek'/>
81  <install path='/macros/latex/contrib/oberdiek/oberdiek.tds.zip'/>
82 </entry>
83 ⟨/catalogue⟩
```

5   History

[2001/06/21 v1.0]

- First public version.

[2001/06/22 v1.1]

- Documentation fixes.

[2006/02/20 v1.2]

- DTX framework.

- Example added.

6   Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; plain numbers refer to the code lines where the entry is used.