

# ACCESSORIES

## CALRIX • DATA-SHEET



### General

*CalRIX* is a completely synthetic fluid on a fluorine base. It is of low molecular weight, colourless, clear and odourless.

More detailed information about the chemical composition and molecular structure of this fluid can be obtained upon request.

### Application

*CalRIX* can be used with all RITTER Drum-type Gas Meters (Wet-type Gas Meters). Because *CalRIX* is completely inert to most gases including oxygen, it can be used as a Packing Fluid when water or paraffin oil are not suitable. For example, when the gas needs to remain dry, and when the gas is highly reactive to water or paraffin oil. It is appropriate for use with such gases as:

- > Butane
- > Carbon Dioxide
- > Carbon Tetrachloride
- > Carbon Tetrafluoride
- > Chlorine
- > Deuterium
- > Fluorine
- > Helium
- > Hydrogen chloride
- > Hydrogen Fluoride
- > Methane
- > Nitrogen trichloride
- > Nitrogen trifluoride NF<sub>3</sub>
- > Oxygen
- > Phosphine
- > Propane
- > Silane
- > Sulphur Hexafluoride

### Advantages

- > Extremely resistant even against highly aggressive gases because of *CalRIX*'s fluorine base,
- > less evaporation than water due to its lower vapour pressure, resulting in greater stability of the Packing Fluid level and in more consistent measurement result,
- > very smooth rotation of the measuring drum in the Gas Meter because of *CalRIX*'s high density and low surface tension.

### Properties

|                   |     |    |      |                              |
|-------------------|-----|----|------|------------------------------|
| <b>Viscosity:</b> | -20 | °C | 11,7 | mm <sup>2</sup> /sec (= cSt) |
|                   | 20  | °C | 2,7  | mm <sup>2</sup> /sec         |

|                             |                                    |  |        |                      |
|-----------------------------|------------------------------------|--|--------|----------------------|
|                             | 25                                 | °C   | 2,4    | mm <sup>2</sup> /sec |
|                             | 100                                | °C   | 0,7    | mm <sup>2</sup> /sec |
| <b>Density:</b>             | 20                                 | °C   | 1,80   | g/ml                 |
|                             | 100                                | °C   | 1,64   | g/ml                 |
| <b>Vapour pressure:</b>     | 20                                 | °C   | 0,4    | mbar                 |
|                             | 100                                | °C   | 30,8   | mbar                 |
|                             | 120                                | °C   | 65,6   | mbar                 |
| <b>Working Temp. Range:</b> | -20                                | °C   | to 190 | °C                   |
| <b>Boiling Point::</b>      | 200                                | °C   |        |                      |
| <b>Pour point:</b>          | -85                                | °C   |        |                      |
| <b>Solubility of Water:</b> | 14                                 | ppm  |        |                      |
| <b>Solubility of Air:</b>   | 26                                 | cm <sup>3</sup> gas per 100 cm <sup>3</sup> liquid |        |                      |
| <b>Volatility:</b>          | 34.4                               | % in 22 Stunden bei 66°C                           |        |                      |
| <b>Appearance:</b>          | Clear, odourless, colourless fluid |  |        |                      |


## Solubility of Gases (Bunsen coefficient at room temperature)


|                      |      |
|----------------------|------|
| Butane               | 8.5  |
| Boron Trichloride    | 13.1 |
| Boron Trifluoride    | 0.22 |
| Carbon Dioxide       | 1.2  |
| Carbon Tetrachloride | 52.6 |
| Carbon Tetrafluoride | 0.68 |
| CFC 114              | 14.9 |
| CFC 12               | 4.25 |
| CFC 133a             | 13.9 |
| CFC 134a             | 4.7  |
| CFC 21               | 13.1 |
| CFC 22               | 4.86 |
| Chlorine             | 3.19 |
| Deuterium            | 0.10 |
| Esafluoroethane      | 2.12 |
| Fluorine             | 0.20 |
| Helium               | 0.08 |

|                              |       |
|------------------------------|-------|
| Hydrochloric acid            | 0.806 |
| Hydrogen                     | 0.10  |
| Methane                      | 0.17  |
| Nitrogen                     | 0.19  |
| Nitrogen Trichloride         | 0.83  |
| Nitrogen Trifluoride approx. | 0.9   |
| Oxygen                       | 0.29  |
| Phosphine                    | 0.67  |
| Propane                      | 3.8   |
| Silane                       | 0.36  |
| Sulphur Hexafluoride         | 3.5   |

The Bunsen coefficient [N ml/ml] is the volume of gas, reduced to Normal condition (1013 mbar, 0°C), dissolved in the volume unit of fluid.

## Material Safety Data Sheets

 Pionier 4281 (MSDS)

 Silox (MSDS)

 CalRiX (MSDS)

V 1.0 / Rev. 2018-10-15 / Subject to alterations.

The most recent version of this data-sheet can be found at <https://www.ritter.de/en/data-sheets/calrix/>

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