

# Klea<sup>®</sup> 407A

## Data Sheet

### Applications

Typical applications include:

- Supermarket display cases and cabinets
- Food storage and processing
- Food service counters

### Benefits

- Convenient and cost-effective solution for replacing R-22 either in retrofit or new systems and as an alternative to R-404A in both retrofit and new systems
- Non ozone depleting blend of R-32, R-125 and R-134a
- Low direct GWP and low overall TEWI compared with competing HFC alternative refrigerants such as R-404A in the food retail sector (based on IPCC 4th Report)
- Straight forward retrofit procedures similar to other HFC systems
- Simple retrofit as pipework and expansion valves can be equivalent to a R-22 system and within the range of R-404A system operation
- Excellent energy efficiency across the range of low and medium evaporation temperatures
- Prolonged compressor life as significantly lowered discharge temperatures compared to R-22 with resulting wider operating envelope
- Potential for further energy savings e.g. heat recovery and reduced requirement for auxiliary compressor cooling
- Thermodynamic and physical property data available

### Product Information Klea<sup>®</sup> 407A

Klea<sup>®</sup> 407A is an energy efficient, low GWP refrigerant designed for use in medium and low temperature supermarket applications. It is a perfect replacement for R-22 in existing systems, as well as being an ideal option for new installations.

Klea<sup>®</sup> 407A is also a valuable alternative to R-404A where its improved energy efficiency and reduced Global Warming Potential can contribute to reduced running costs and a reduction in carbon footprint in many application areas such as supermarket refrigeration.

## Performance

- Refrigeration capacity closely matches R-22 and R-404A
- Similar liquid density to R-22 and R-404A
- Mass flow of refrigerant required for each kilowatt of refrigeration duty is within 10% of that required by R-22. Can generally use existing R-404A expansion valves
- Significantly lower discharge temperature compared to R-22
- Excellent balance of capacity and efficiency over the food retail operating range

| Property   | R-22                  | Klea® 407A            | R-404A                |
|--|-----------------------|-----------------------|-----------------------|
| Critical Temperature                             | 96.1°C                | 82.3°C                | 72.05°C               |
| Critical Pressure                                | 49.9 bar              | 45.2 bar              | 37.3 bar              |
| Molecular Weight                                 | 86.5                  | 90.1                  | 97.6                  |
| Liquid Density<br>(saturation@ 20°C)             | 1210kg/m <sup>3</sup> | 1167kg/m <sup>3</sup> | 1067kg/m <sup>3</sup> |
| Dew Point (1 atm)                                | -40.8°C               | -38.6°C               | -45.5°C               |
| Capacity <sup>1</sup>                            | 11.1kW                | 11.2kW                | 11.0kW                |
| Mass flow per kW <sup>1</sup>                    | 100%                  | 109%                  | 144%                  |
| Compressor Discharge<br>Temperature <sup>1</sup> | 99.4°C                | 81.1°C                | 65.7°C                |

<sup>1</sup> based on a calculated medium temperature refrigeration cycle. Evaporator mid-point -15°C, 5°C useful superheat, 40°C condensing mid-point, 5°C liquid subcooling, 65% compressor isentropic efficiency with fixed displacement of 20m<sup>3</sup>/hour. No demand cooling applied.

## Lubricants Recommendation

Retrofit of KLEA® 407A involves replacing the bulk of the existing mineral oil lubricant with a POE lubricant.

Materials compatibility with the KLEA® 407A/POE combination is generally very good and similar to that of R-407C with POE. Mexichem Fluor recommends users consult the compressor manufacturer's retrofit guidelines.

KLEA® 407A is widely approved by compressor manufacturers and is widely compatible with the POE lubricants that are used with R-404A.

Mexichem UK Limited, The Heath Business & Technical Park, Runcorn, Cheshire, WA7 4QX

Tel: +44 (0)1928 518880 | E-mail: [info@mexichem.com](mailto:info@mexichem.com) | [www.mexichemfluor.com](http://www.mexichemfluor.com)

Disclaimer  
Information contained in this publication, or as otherwise supplied to the Users is believed to be accurate and given in good faith, but it is for the User to satisfy itself of the suitability for its own particular purpose. Mexichem gives no warranty as to the fitness of the Product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that such exclusion is prevented by law. Mexichem accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patent, Copyright and Design cannot be assumed. Klea® and Mexichem® are trademarks of Mexichem SAB de C.V.

© Mexichem 2016. All rights reserved. Not to be reproduced without the consent of the copyright owner.

**Klea®**

**Mexichem.**  
Refrigerants