

## Description of STANDARON<sup>®</sup> materials

The DRRR has concluded a far reaching cooperation with the IfL. The main focus of this cooperation is the development and commercialisation of long term calibration materials for the food economy. The developed materials were merchandised with the name **STANDARON**<sup>®</sup>.

With the cooperation arises a range of services that offers not only regional but also national both in North and South Germany a competent reference system for raw milk analysis. Therewith it also offers more advantages and reliabilities for our international customers. The cooperation could already prove its competence at the new introduced **STANDARON**<sup>®</sup> raw cream materials. The quality advantage of the materials has been clearly confirmed at linearity, precision and stability. Besides standard materials is a focus of the cooperation to produce tailormade, customer-oriented materials which are specially designed to cover individual production processes.

If you need any advice to assure your calibration do not hesitate to contact us.

**STANDARON**<sup>®</sup> long-term calibration materials (LKM) for raw milk, raw cream and pasteurised milk will be used for the calibration of IR instruments.

The reference values of **STANDARON**<sup>®</sup> materials were defined by selected "reference laboratories". These laboratories are proved according to DIN EN ISO/IEC 17025:2005 in line with the accreditation process of the German accreditation body DAkkS.



|   | pasteurised                         |                    |                             |                                |                       |                                  |                            |        |  |
|---|-------------------------------------|--------------------|-----------------------------|--------------------------------|-----------------------|----------------------------------|----------------------------|--------|--|
|   | milk                                |                    |                             |                                |                       |                                  |                            |        |  |
|   | fat                                 | protein            | lactose<br>mono-<br>hydrate | dry<br>matter                  | freezing<br>point     | urea                             |                            |        |  |
| LKM-type  | Roese-Gottlieb                      | Kjeldahl           | enzym.                      | 102 °C                         | cryos-<br>copy        | enzym.                           | packaging unit             | prices |  |
|   | g/100g                              | g/100g             | g/100g                      | g/100g                         | °C                    | mg/l                             |                            |        |  |
|   |                                     |                    |                             |                                |                       |                                  |                            |        |  |
| LKM PAM K1  | 0,0 - 0,9 %                         |                    |                             |                                |                       |                                  |                            |        |  |
| LKM PAM K2  | 1,0 - 1,9 %                         |                    |                             |                                |                       |                                  |                            |        |  |
| LKM PAM K3  | 2,0 - 3,0 %                         | ava<br>corresp     | ailable refe                | erence ma<br>ference va        | 50 ml                 | 15,10 €                          |                            |        |  |
| LKM PAM K4  | 3,1 - 3,5 %                         |                    | (                           | on reques                      |                       |                                  |                            |        |  |
| LKM PAM K5  | 3,6 - 3,9 %                         |                    |                             |                                |                       |                                  |                            |        |  |
| LKM PAM K6  | 4,0 - 4,5 %                         |                    |                             |                                |                       |                                  |                            |        |  |
| Exemplary graphics for the selection of long-term calibration materials   |                                     |                    |                             |                                |                       |                                  |                            |        |  |
| 4,4<br>4,2<br>4,0<br>3,8<br>3,6<br>3,4<br>3,2<br>3,0<br>2,8<br>2,8<br>2,8<br>2,6<br>2,4<br>2,4<br>2,2<br>2,0<br>1,8 |                                     |                    | LKM<br>M K3 (2,0<br>%)      | RON<br> <br>  PAM K4<br> - 3,0 | .KM PAM<br>(3,1 - 3,5 | <pre> LKN   K5 (3,6 -   %)</pre> | Л РАМ К6 (4 - 4,<br>3,9 %) | 5 %)   |  |
| 1,6<br>1,4<br>1,2<br>1,0<br>0,8<br>0,6<br>0,4<br>0,2<br>0,0   | LKM PAM K<br>%)<br>M K1 (0 - 0,9 %) | 72 (1,0 - 1,5<br>) | 9                           |                                |                       |                                  |                            |        |  |

| overview   |           |                  |  |   |   |                                   |                             | raw cream                       |         |  |
|--|-----------|------------------|--|---|---|-----------------------------------|-----------------------------|---------------------------------|---------|--|
| LKM-type   |           | fat              | protein                                      | lactose<br>mono-<br>hydrate                         | dry<br>matter                               | freezing<br>point                 | urea                        |                                 |         |  |
|  |           | Roese-Gottlieb   | Kjeldahl                                     | enzym.  | 102 °C                                      | cryos-<br>copy                    | enzym.                      | packaging unit                  | prices  |  |
|  |           | g/100g           | g/100g                                       | g/100g  | g/100g                                      | °C                                | mg/l                        |                                 |         |  |
|  |           |                  | ref  | reference values                                    |   |                                   |                             |                                 |         |  |
| LKM R K  | 1         | 10 - 14 %        |  |   |   |                                   |                             |                                 |         |  |
| LKM R K  | 2         | 15 - 19 %        |  |   |   |                                   |                             |                                 |         |  |
| LKM R K3 20 - 24 %   |           |                  | _  |   |   |                                   |                             |                                 |         |  |
| LKM R K4 25  |           | 25 - 28 %        | available reference material and the         |   |   |                                   |                             |                                 |         |  |
| LKM R K  | 5         | 29 - 32 %        | corresponding reference values are available |   |   |                                   |                             | 50 ml                           | 17,90 € |  |
| LKM R K  | 33 - 35 % |                  |  |   |   |                                   |                             |                                 |         |  |
| LKM R K  | 7         | 36 - 40 %        |  |   |   |                                   |                             |                                 |         |  |
| LKM R K  | 8         | 41 - 43 %        |  |   |   |                                   |                             |                                 |         |  |
| LKM R K  | 9         | 44 - 46 %        |  |   |   |                                   |                             |                                 |         |  |
| Exemplary graphics for the selection of long-term calibration materials  |           |                  |  |   |   |                                   |                             |                                 |         |  |
| 46,0<br>44,0<br>40,0<br>38,0<br>36,0<br>34,0<br>32,0<br>30,0<br>20,0<br>22,0<br>22,0<br>18,0<br>16,0<br>14,0   |           | LKM R K2 (15 -   | <b>LKM R H</b><br>K3 (20 - 24<br>19 %)       | <b>IANE</b><br>L<br>LKM R K:<br>(4 (25 - 28<br>4 %) | <b>)A</b> /?(<br>L<br>KM R K6<br>5 (29 - 32 | Charlen 1 KM R K7 3 (33 - 35 % %) | LM<br>KM R K8<br>(36 - 40 % | (M R K9 (44 - 46<br>(41 - 43 %) | %)<br>  |  |
| 12,0   | LKM F     | R K1 (10 - 14 %) |  |   |   |                                   |                             |                                 |         |  |
| Your contact persons at DRRR GmbH, Kempten:<br>Team Reference Materials<br>Dr. Ulrich Leist<br>Your contact persons at LUFA NORD-WEST, Oldenburg<br>Angela Fehrmann-Reese<br>Sarah Pietsch<br>+49 (0)4 41/97 352-152 |           |                  |  |   |   |                                   |                             |                                 |         |  |