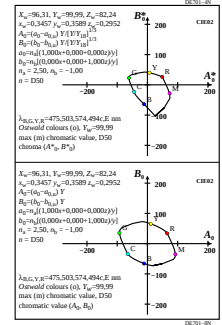
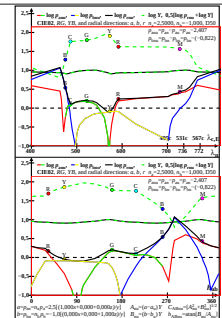


TUB material: code=rha4ta



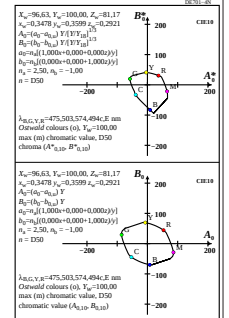
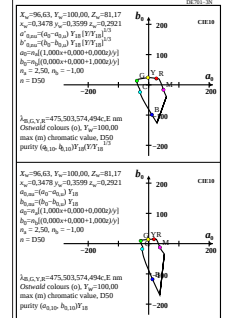
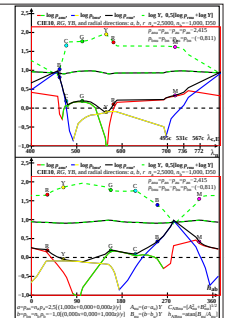
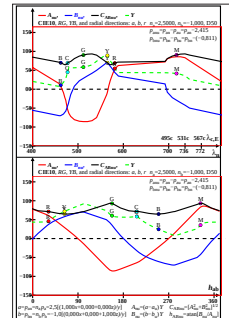
DOI:10.1002/chem

—see similar files: <http://farbe.li.tu-berlin.de/DE70/DE70.HTM>  
technical information: <http://farbe.li.tu-berlin.de> or <http://130.149.60.45/~farbmetrik>

| Table 1<br>13-IEE trimeric values, chromatic values, and position (p) by symmetry     |        |        |        |        |        |        |        |        |        |        |        |        |
|---------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Normalized Grawald ( $\chi^2$ ) trimeric values ( $T_{ijk}$ )—only by $\chi^2$ values |        |        |        |        |        |        |        |        |        |        |        |        |
| no. of<br>trimer                                                                      | 13-IEE |        |        | 13-IEE |        |        | 13-IEE |        |        | 13-IEE |        |        |
|                                                                                       | 13-IEE | 13-IEE | 13-IEE | 13-IEE | 13-IEE | 13-IEE | 13-IEE | 13-IEE | 13-IEE | 13-IEE | 13-IEE | 13-IEE |
| 00                                                                                    | 0.78   | 0.55   | 0.26   | 71.08  | 0.38   | 0.17   | 0.86   | 1.1    | 0.13   | 0.07   | 0.24   | 0.02   |
| 01                                                                                    | 0.78   | 0.55   | 0.26   | 71.08  | 0.38   | 0.17   | 0.86   | 1.1    | 0.13   | 0.07   | 0.24   | 0.02   |
| 02                                                                                    | 0.78   | 0.55   | 0.26   | 71.08  | 0.38   | 0.17   | 0.86   | 1.1    | 0.13   | 0.07   | 0.24   | 0.02   |
| 03                                                                                    | 0.78   | 0.55   | 0.26   | 71.08  | 0.38   | 0.17   | 0.86   | 1.1    | 0.13   | 0.07   | 0.24   | 0.02   |
| 04                                                                                    | 0.78   | 0.55   | 0.26   | 71.08  | 0.38   | 0.17   | 0.86   | 1.1    | 0.13   | 0.07   | 0.24   | 0.02   |
| 05                                                                                    | 0.78   | 0.55   | 0.26   | 71.08  | 0.38   | 0.17   | 0.86   | 1.1    | 0.13   | 0.07   | 0.24   | 0.02   |
| 06                                                                                    | 0.78   | 0.55   | 0.26   | 71.08  | 0.38   | 0.17   | 0.86   | 1.1    | 0.13   | 0.07   | 0.24   | 0.02   |
| 07                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 08                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 09                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 10                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 11                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 12                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 13                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 14                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 15                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 16                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 17                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 18                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 19                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 20                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 21                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 22                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 23                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 24                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 25                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 26                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 27                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 28                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 29                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 30                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 31                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 32                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 33                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 34                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 35                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 36                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 37                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 38                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 39                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 40                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 41                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 42                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 43                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 44                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 45                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 46                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 47                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 48                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 49                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 50                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 51                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 52                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 53                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 54                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 55                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 56                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 57                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 58                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 59                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 60                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 61                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 62                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 63                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 64                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 65                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 66                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 67                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 68                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 69                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 70                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 71                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 72                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 73                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 74                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 75                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 76                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 77                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 78                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 79                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 80                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 81                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 82                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 83                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 84                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 85                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 86                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 87                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 88                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 89                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 90                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 91                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 92                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 93                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 94                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 95                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 96                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 97                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 98                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 99                                                                                    | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   | 0.24   | 0.02   |
| 100                                                                                   | 0.71   | 0.46   | 0.24   | 60.75  | 0.22   | 0.13   | 0.73   | 0.22   | -0.49  | 0.09   |        |        |

| C/E19 (trinitroresidue values, chromatatic values, and profiles (by 25, 50, 75, and 100% of the total trinitroresidue value)) |   |       |      |       |      |      |      |      |      |
|-------------------------------------------------------------------------------------------------------------------------------|---|-------|------|-------|------|------|------|------|------|
| Normalized Chromatic (C) trinitroresidue value (1-5) (profile by 25, 50, 75, and 100% of the total trinitroresidue value)     |   |       |      |       |      |      |      |      |      |
| no. of C                                                                                                                      |   | 25%   |      |       |      | 50%  |      |      |      |
| 45                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 46                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 47                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 48                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 49                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 50                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 51                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 52                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 53                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 54                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 55                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 56                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 57                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 58                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 59                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 60                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 61                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 62                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 63                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 64                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 65                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 66                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 67                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 68                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 69                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 70                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 71                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 72                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 73                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 74                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 75                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 76                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 77                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 78                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 79                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 80                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 81                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 82                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 83                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 84                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 85                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 86                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 87                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 88                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 89                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 90                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 91                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 92                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 93                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 94                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 95                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 96                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 97                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 98                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 99                                                                                                                            | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |
| 100                                                                                                                           | 2 | 2.506 | 4.68 | 10.25 | 1.91 | 2.91 | 2.91 | 2.91 | 2.91 |

| No.   | 11-BE triethyl values ( $T_{\text{BE}}$ ) and ratios (by $T_{\text{BE}}$ , $T_{\text{BE}}/T_{\text{BE}}$ ) |                               |                               | Normalized Gzardal ( $G_z$ ) triethyl values ( $T_{\text{BE}}$ ) and ratios (by $T_{\text{BE}}$ , $T_{\text{BE}}/T_{\text{BE}}$ ) |                     |                     | $T_{\text{BE}}$ and ratios (by $T_{\text{BE}}$ , $T_{\text{BE}}/T_{\text{BE}}$ ) |                               |                               |
|-------|------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|----------------------------------------------------------------------------------|-------------------------------|-------------------------------|
|       | $T_{\text{BE}}$                                                                                            | $T_{\text{BE}}/T_{\text{BE}}$ | $T_{\text{BE}}/T_{\text{BE}}$ | $G_z$                                                                                                                             | $G_z/T_{\text{BE}}$ | $G_z/T_{\text{BE}}$ | $T_{\text{BE}}$                                                                  | $T_{\text{BE}}/T_{\text{BE}}$ | $T_{\text{BE}}/T_{\text{BE}}$ |
| 00    | 66.62                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 01    | 67.07                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 02    | 67.52                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 03    | 67.97                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 04    | 68.42                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 05    | 68.87                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 06    | 69.32                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 07    | 69.77                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 08    | 70.22                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 09    | 70.67                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 10    | 71.12                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 11    | 71.57                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 12    | 72.02                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 13    | 72.47                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 14    | 72.92                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 15    | 73.37                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 16    | 73.82                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 17    | 74.27                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 18    | 74.72                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 19    | 75.17                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 20    | 75.62                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 21    | 76.07                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 22    | 76.52                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 23    | 76.97                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 24    | 77.42                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 25    | 77.87                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 26    | 78.32                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 27    | 78.77                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 28    | 79.22                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 29    | 79.67                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 30    | 80.12                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 31    | 80.57                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 32    | 81.02                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 33    | 81.47                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 34    | 81.92                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 35    | 82.37                                                                                                      | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| 36    | 82.8                                                                                                       | 70.36                         | 45.57                         | 21.37                                                                                                                             | 0.322               | 0.320               | 0.575                                                                            | 0.75                          | 73.5                          |
| U-150 | 66.63                                                                                                      | 10.68                         | 0.17                          | 0.37                                                                                                                              | 0.33                | 0.735               | 0.0                                                                              | 0.0                           | 0.0                           |

[illegible]

TUV registration: 20180801-DE70/DE70L0N1.TY  
+ application for measurement of offset print output

TUB material: code=rha4ta

TUB-test chart DE70; 4 CIE and 2 R17M observers, colorimetric calculations of chromatic values  
purity definition:  $a=2.5[x/v]$ ,  $b=-1.0[z/v]$





**R17M tristimulus values, chromatic values, and putties (p < 2.5, n<sub>0</sub> = 1.6).**  
Normalized Overall (O) tristimulus values (Y<sub>0</sub>=100), edited by hue angle.

| no. | O     | X     | Y     | Z     | x     | y     | z     | x <sub>0</sub> | y <sub>0</sub> | z <sub>0</sub> |
|-----|-------|-------|-------|-------|-------|-------|-------|----------------|----------------|----------------|
| 30  | 25.4  | 24.34 | 23.56 | 24.46 | 0.366 | 0.319 | 0.684 | 41.1           | 61.7           | 74.2           |
| 40  | 45.0  | 26.22 | 30.17 | 70.14 | 0.245 | 0.097 | 0.657 | 28.1           | 40.8           | 70.8           |
| 50  | 64.5  | 18.01 | 9.83  | 72.37 | 0.195 | 0.089 | 0.715 | 24.1           | 36.8           | 70.8           |
| 60  | 83.5  | 18.07 | 11.18 | 74.25 | 0.188 | 0.098 | 0.707 | 23.4           | 36.2           | 69.2           |
| 70  | 103.0 | 16.46 | 16.46 | 77.09 | 0.176 | 0.147 | 0.678 | 21.1           | 34.6           | 64.6           |
| 80  | 122.5 | 15.15 | 23.15 | 76.71 | 0.169 | 0.189 | 0.641 | 19.1           | 32.0           | 60.0           |
| 90  | 142.0 | 13.32 | 32.32 | 76.71 | 0.169 | 0.234 | 0.596 | 16.1           | 29.4           | 55.8           |
| 97  | 147.9 | 12.67 | 35.67 | 76.71 | 0.173 | 0.252 | 0.571 | 15.1           | 28.1           | 55.2           |
| 103 | 151.8 | 12.02 | 38.02 | 76.71 | 0.186 | 0.268 | 0.538 | 14.1           | 26.8           | 52.8           |
| 109 | 156.2 | 11.37 | 40.37 | 76.71 | 0.199 | 0.283 | 0.505 | 13.1           | 25.5           | 50.5           |
| 115 | 160.6 | 10.72 | 42.72 | 76.71 | 0.212 | 0.298 | 0.472 | 12.1           | 24.2           | 48.2           |
| 118 | 162.0 | 10.58 | 43.58 | 76.71 | 0.216 | 0.303 | 0.465 | 11.6           | 23.7           | 47.7           |
| 119 | 162.5 | 10.54 | 43.74 | 76.71 | 0.217 | 0.304 | 0.464 | 11.5           | 23.6           | 47.6           |
| 120 | 162.6 | 10.53 | 43.75 | 76.71 | 0.217 | 0.304 | 0.464 | 11.5           | 23.6           | 47.6           |
| 121 | 162.7 | 10.52 | 43.76 | 76.71 | 0.218 | 0.305 | 0.463 | 11.4           | 23.5           | 47.5           |
| 122 | 162.8 | 10.51 | 43.77 | 76.71 | 0.219 | 0.306 | 0.462 | 11.3           | 23.4           | 47.4           |
| 123 | 162.9 | 10.50 | 43.78 | 76.71 | 0.220 | 0.307 | 0.461 | 11.2           | 23.3           | 47.3           |
| 124 | 163.0 | 10.49 | 43.79 | 76.71 | 0.221 | 0.308 | 0.460 | 11.1           | 23.2           | 47.2           |
| 125 | 163.1 | 10.48 | 43.80 | 76.71 | 0.222 | 0.309 | 0.459 | 11.0           | 23.1           | 47.1           |
| 126 | 163.2 | 10.47 | 43.81 | 76.71 | 0.223 | 0.310 | 0.458 | 10.9           | 23.0           | 47.0           |
| 127 | 163.3 | 10.46 | 43.82 | 76.71 | 0.224 | 0.311 | 0.457 | 10.8           | 22.9           | 46.9           |
| 128 | 163.4 | 10.45 | 43.83 | 76.71 | 0.225 | 0.312 | 0.456 | 10.7           | 22.8           | 46.8           |
| 129 | 163.5 | 10.44 | 43.84 | 76.71 | 0.226 | 0.313 | 0.455 | 10.6           | 22.7           | 46.7           |
| 130 | 163.6 | 10.43 | 43.85 | 76.71 | 0.227 | 0.314 | 0.454 | 10.5           | 22.6           | 46.6           |
| 131 | 163.7 | 10.42 | 43.86 | 76.71 | 0.228 | 0.315 | 0.453 | 10.4           | 22.5           | 46.5           |
| 132 | 163.8 | 10.41 | 43.87 | 76.71 | 0.229 | 0.316 | 0.452 | 10.3           | 22.4           | 46.4           |
| 133 | 163.9 | 10.40 | 43.88 | 76.71 | 0.230 | 0.317 | 0.451 | 10.2           | 22.3           | 46.3           |
| 134 | 164.0 | 10.39 | 43.89 | 76.71 | 0.231 | 0.318 | 0.450 | 10.1           | 22.2           | 46.2           |
| 135 | 164.1 | 10.38 | 43.90 | 76.71 | 0.232 | 0.319 | 0.449 | 10.0           | 22.1           | 46.1           |
| 136 | 164.2 | 10.37 | 43.91 | 76.71 | 0.233 | 0.320 | 0.448 | 9.9            | 22.0           | 46.0           |
| 137 | 164.3 | 10.36 | 43.92 | 76.71 | 0.234 | 0.321 | 0.447 | 9.8            | 21.9           | 45.9           |
| 138 | 164.4 | 10.35 | 43.93 | 76.71 | 0.235 | 0.322 | 0.446 | 9.7            | 21.8           | 45.8           |
| 139 | 164.5 | 10.34 | 43.94 | 76.71 | 0.236 | 0.323 | 0.445 | 9.6            | 21.7           | 45.7           |
| 140 | 164.6 | 10.33 | 43.95 | 76.71 | 0.237 | 0.324 | 0.444 | 9.5            | 21.6           | 45.6           |
| 141 | 164.7 | 10.32 | 43.96 | 76.71 | 0.238 | 0.325 | 0.443 | 9.4            | 21.5           | 45.5           |
| 142 | 164.8 | 10.31 | 43.97 | 76.71 | 0.239 | 0.326 | 0.442 | 9.3            | 21.4           | 45.4           |
| 143 | 164.9 | 10.30 | 43.98 | 76.71 | 0.240 | 0.327 | 0.441 | 9.2            | 21.3           | 45.3           |
| 144 | 165.0 | 10.29 | 43.99 | 76.71 | 0.241 | 0.328 | 0.440 | 9.1            | 21.2           | 45.2           |
| 145 | 165.1 | 10.28 | 44.00 | 76.71 | 0.242 | 0.329 | 0.439 | 9.0            | 21.1           | 45.1           |
| 146 | 165.2 | 10.27 | 44.01 | 76.71 | 0.243 | 0.330 | 0.438 | 8.9            | 21.0           | 45.0           |
| 147 | 165.3 | 10.26 | 44.02 | 76.71 | 0.244 | 0.331 | 0.437 | 8.8            | 20.9           | 44.9           |
| 148 | 165.4 | 10.25 | 44.03 | 76.71 | 0.245 | 0.332 | 0.436 | 8.7            | 20.8           | 44.8           |
| 149 | 165.5 | 10.24 | 44.04 | 76.71 | 0.246 | 0.333 | 0.435 | 8.6            | 20.7           | 44.7           |
| 150 | 165.6 | 10.23 | 44.05 | 76.71 | 0.247 | 0.334 | 0.434 | 8.5            | 20.6           | 44.6           |
| 151 | 165.7 | 10.22 | 44.06 | 76.71 | 0.248 | 0.335 | 0.433 | 8.4            | 20.5           | 44.5           |
| 152 | 165.8 | 10.21 | 44.07 | 76.71 | 0.249 | 0.336 | 0.432 | 8.3            | 20.4           | 44.4           |
| 153 | 165.9 | 10.20 | 44.08 | 76.71 | 0.250 | 0.337 | 0.431 | 8.2            | 20.3           | 44.3           |
| 154 | 166.0 | 10.19 | 44.09 | 76.71 | 0.251 | 0.338 | 0.430 | 8.1            | 20.2           | 44.2           |
| 155 | 166.1 | 10.18 | 44.10 | 76.71 | 0.252 | 0.339 | 0.429 | 8.0            | 20.1           | 44.1           |
| 156 | 166.2 | 10.17 | 44.11 | 76.71 | 0.253 | 0.340 | 0.428 | 7.9            | 20.0           | 44.0           |
| 157 | 166.3 | 10.16 | 44.12 | 76.71 | 0.254 | 0.341 | 0.427 | 7.8            | 19.9           | 43.9           |
| 158 | 166.4 | 10.15 | 44.13 | 76.71 | 0.255 | 0.342 | 0.426 | 7.7            | 19.8           | 43.8           |
| 159 | 166.5 | 10.14 | 44.14 | 76.71 | 0.256 | 0.343 | 0.425 | 7.6            | 19.7           | 43.7           |
| 160 | 166.6 | 10.13 | 44.15 | 76.71 | 0.257 | 0.344 | 0.424 | 7.5            | 19.6           | 43.6           |
| 161 | 166.7 | 10.12 | 44.16 | 76.71 | 0.258 | 0.345 | 0.423 | 7.4            | 19.5           | 43.5           |
| 162 | 166.8 | 10.11 | 44.17 | 76.71 | 0.259 | 0.346 | 0.422 | 7.3            | 19.4           | 43.4           |
| 163 | 166.9 | 10.10 | 44.18 | 76.71 | 0.260 | 0.347 | 0.421 | 7.2            | 19.3           | 43.3           |
| 164 | 167.0 | 10.09 | 44.19 | 76.71 | 0.261 | 0.348 | 0.420 | 7.1            | 19.2           | 43.2           |
| 165 | 167.1 | 10.08 | 44.20 | 76.71 | 0.262 | 0.349 | 0.419 | 7.0            | 19.1           | 43.1           |
| 166 | 167.2 | 10.07 | 44.21 | 76.71 | 0.263 | 0.350 | 0.418 | 6.9            | 19.0           | 43.0           |
| 167 | 167.3 | 10.06 | 44.22 | 76.71 | 0.264 | 0.351 | 0.417 | 6.8            | 18.9           | 42.9           |
| 168 | 167.4 | 10.05 | 44.23 | 76.71 | 0.265 | 0.352 | 0.416 | 6.7            | 18.8           | 42.8           |
| 169 | 167.5 | 10.04 | 44.24 | 76.71 | 0.266 | 0.353 | 0.415 | 6.6            | 18.7           | 42.7           |
| 170 | 167.6 | 10.03 | 44.25 | 76.71 | 0.267 | 0.354 | 0.414 | 6.5            | 18.6           | 42.6           |
| 171 | 167.7 | 10.02 | 44.26 | 76.71 | 0.268 | 0.355 | 0.413 | 6.4            | 18.5           | 42.5           |
| 172 | 167.8 | 10.01 | 44.27 | 76.71 | 0.269 | 0.356 | 0.412 | 6.3            | 18.4           | 42.4           |
| 173 | 167.9 | 10.00 | 44.28 | 76.71 | 0.270 | 0.357 | 0.411 | 6.2            | 18.3           | 42.3           |
| 174 | 168.0 | 9.99  | 44.29 | 76.71 | 0.271 | 0.358 | 0.410 | 6.1            | 18.2           | 42.2           |
| 175 | 168.1 | 9.98  | 44.30 | 76.71 | 0.272 | 0.359 | 0.409 | 6.0            | 18.1           | 42.1           |
| 176 | 168.2 | 9.97  | 44.31 | 76.71 | 0.273 | 0.360 | 0.408 | 5.9            | 18.0           | 42.0           |
| 177 | 168.3 | 9.96  | 44.32 | 76.71 | 0.274 | 0.361 | 0.407 | 5.8            | 17.9           | 41.9           |
| 178 | 168.4 | 9.95  | 44.33 | 76.71 | 0.275 | 0.362 | 0.406 | 5.7            | 17.8           | 41.8           |
| 179 | 168.5 | 9.94  | 44.34 | 76.71 | 0.276 | 0.363 | 0.405 | 5.6            | 17.7           | 41.7           |
| 180 | 168.6 | 9.93  | 44.35 | 76.71 | 0.277 | 0.364 | 0.404 | 5.5            | 17.6           | 41.6           |
| 181 | 168.7 | 9.92  | 44.36 | 76.71 | 0.278 | 0.365 | 0.403 | 5.4            | 17.5           | 41.5           |
| 182 | 168.8 | 9.91  | 44.37 | 76.71 | 0.279 | 0.366 | 0.402 | 5.3            | 17.4           | 41.4           |
| 183 | 168.9 | 9.90  | 44.38 | 76.71 | 0.280 | 0.367 | 0.401 | 5.2            | 17.3           | 41.3           |
| 184 | 169.0 | 9.89  | 44.39 | 76.71 | 0.281 | 0.368 | 0.400 | 5.1            | 17.2           | 41.2           |
| 185 | 169.1 | 9.88  | 44.40 | 76.71 | 0.282 | 0.369 | 0.399 | 5.0            | 17.1           | 41.1           |
| 186 | 169.2 | 9.87  | 44.41 | 76.71 | 0.283 | 0.370 | 0.398 | 4.9            | 17.0           | 41.0           |
| 187 | 169.3 | 9.86  | 44.42 | 76.71 | 0.284 | 0.371 | 0.397 | 4.8            | 16.9           | 40.9           |
| 188 | 169.4 | 9.85  | 44.43 | 76.71 | 0.285 | 0.372 | 0.396 | 4.7            | 16.8           | 40.8           |
| 189 | 169.5 | 9.84  | 44.44 | 76.71 | 0.286 | 0.373 | 0.395 | 4.6            | 16.7           | 40.7           |
| 190 | 169.6 | 9.83  | 44.45 | 76.71 | 0.287 | 0.374 | 0.394 | 4.5            | 16.6           | 40.6           |
| 191 | 169.7 | 9.82  | 44.46 | 76.71 | 0.288 | 0.375 | 0.393 | 4.4            | 16.5           | 40.5           |
| 192 | 169.8 | 9.81  | 44.47 | 76.71 | 0.289 | 0.376 | 0.392 | 4.3            | 16.4           | 40.4           |
| 193 | 169.9 | 9.80  | 44.48 | 76.71 | 0.290 | 0.377 | 0.391 | 4.2            | 16.3           | 40.3           |
| 194 | 170.0 | 9.79  | 44.49 | 76.71 | 0.291 | 0.378 | 0.390 | 4.1            | 16.2           | 40.2           |
| 195 | 170.1 | 9.78  | 44.50 | 76.71 | 0.292 | 0.379 | 0.389 | 4.0            | 16.1           | 40.1           |
| 196 | 170.2 | 9.77  | 44.51 | 76.71 | 0.293 | 0.380 | 0.388 | 3.9            | 16.0           | 40.0           |
| 197 | 170.3 | 9.76  | 44.52 | 76.71 | 0.294 | 0.381 | 0.387 | 3.8            | 15.9           | 39.9           |
| 198 | 170.4 | 9.75  | 44.53 | 76.71 | 0.295 | 0.382 | 0.386 | 3.7            | 15.8           | 39.8           |
| 199 | 170.5 | 9.74  | 44.54 | 76.71 | 0.296 | 0.383 | 0.385 | 3.6            | 15.7           | 39.7           |
| 200 | 170.6 | 9.73  | 44.55 | 76.71 | 0.297 | 0.384 | 0.384 | 3.5            | 15.6           | 39.6           |
| 201 | 170.7 | 9.72  | 44.56 | 76.71 | 0.298 | 0.385 | 0.383 | 3.4            | 15.5           | 39.5           |
| 202 | 170.8 | 9.71  | 44.57 | 76.71 | 0.299 | 0.386 | 0.382 | 3.3            | 15.4           | 39.4           |
| 203 | 170.9 | 9.70  | 44.58 | 76.71 | 0.300 | 0.387 | 0.381 | 3.2            | 15.3           | 39.3           |
| 204 | 171.0 | 9.69  | 44.59 | 76.71 | 0.301 | 0.388 | 0.380 | 3.1            | 15.2           | 39.2           |
| 205 | 171.1 | 9.68  | 44.60 | 76.71 | 0.302 | 0.389 | 0.379 | 3.0            | 15.1           | 39.1           |
| 206 | 171.2 | 9.67  | 44.61 | 76.71 | 0.303 | 0.390 | 0.378 | 2.9            | 15.0           | 39.0           |
| 207 | 171.3 | 9.66  | 44.62 | 76.71 | 0.304 | 0.391 | 0.377 | 2.8            | 14.9           |                |

$p_{\text{max}}=p_{\text{max}}\cdot255\cdot(100.00-0.000001)$      $A_{\text{max}}=A_{\text{max}}\cdot255$      $C_{\text{max}}=A_{\text{max}}\cdot100.00$

0 0.00 0.00 0.00

see similar files: <http://farbe.li.tu-berlin.de/DE/70/DE70L0N1.TXT /PS>  
technical information: <http://farbe.li.tu-berlin.de> or <http://30.149.60.45/~farbmexik>

| R1750: tristimulus values, chromatic values, and position (p <sub>2</sub> , p <sub>3</sub> , p <sub>4</sub> ) |        |                                     |        |        |       |                     |                |                |                |
|---------------------------------------------------------------------------------------------------------------|--------|-------------------------------------|--------|--------|-------|---------------------|----------------|----------------|----------------|
| Normalized Overall (O) tristimulus values (Y <sub>100</sub> =100), defined by hue angle                       |        |                                     |        |        |       |                     |                |                |                |
| no.                                                                                                           | O      | Chromatic values and chromaticities |        |        |       | no-chromatic values |                |                |                |
|                                                                                                               |        | X                                   | Y      | Z      | x     | y                   | p <sub>2</sub> | p <sub>3</sub> | p <sub>4</sub> |
| 101                                                                                                           | 79.1   | 49.79                               | 26.14  | 67.62  | 0.399 | 0.313               | 0.080          |                |                |
| 102                                                                                                           | 48.05  | 31.93                               | 9.55   | 72.49  | 0.285 | 0.080               | 0.782          |                |                |
| 103                                                                                                           | 44.44  | 27.16                               | 9.33   | 67.62  | 0.260 | 0.080               | 0.880          |                |                |
| 104                                                                                                           | 40.05  | 21.17                               | 7.436  | 63.98  | 0.209 | 0.080               | 0.982          |                |                |
| 105                                                                                                           | 35.00  | 14.81                               | 4.17   | 57.11  | 0.185 | 0.047               | 1.031          |                |                |
| 106                                                                                                           | 30.00  | 10.23                               | 2.368  | 50.83  | 0.177 | 0.039               | 1.032          |                |                |
| 107                                                                                                           | 25.00  | 6.28                                | 1.27   | 44.08  | 0.175 | 0.021               | 1.031          |                |                |
| 108                                                                                                           | 20.00  | 3.44                                | 0.625  | 36.25  | 0.179 | 0.025               | 1.035          |                |                |
| 109                                                                                                           | 15.00  | 1.81                                | 0.308  | 28.14  | 0.184 | 0.024               | 1.038          |                |                |
| 110                                                                                                           | 10.00  | 0.95                                | 0.156  | 20.00  | 0.192 | 0.026               | 1.036          |                |                |
| 111                                                                                                           | 5.00   | 0.48                                | 0.077  | 12.00  | 0.198 | 0.028               | 1.033          |                |                |
| 112                                                                                                           | 0.00   | 0.25                                | 0.039  | 6.25   | 0.200 | 0.030               | 1.030          |                |                |
| 113                                                                                                           | 11.488 | 25.13                               | 49.09  | 60.78  | 0.386 | 0.326               | 0.620          |                |                |
| 114                                                                                                           | 22.97  | 48.09                               | 95.79  | 118.61 | 0.584 | 0.584               | 0.839          |                |                |
| 115                                                                                                           | 34.50  | 70.99                               | 142.8  | 176.5  | 0.779 | 0.779               | 1.000          |                |                |
| 116                                                                                                           | 46.00  | 93.86                               | 209.8  | 240.0  | 0.931 | 0.931               | 1.000          |                |                |
| 117                                                                                                           | 57.50  | 116.78                              | 276.8  | 303.7  | 1.000 | 1.000               | 1.000          |                |                |
| 118                                                                                                           | 69.00  | 139.68                              | 343.8  | 367.5  | 1.000 | 1.000               | 1.000          |                |                |
| 119                                                                                                           | 80.50  | 162.58                              | 410.8  | 431.3  | 1.000 | 1.000               | 1.000          |                |                |
| 120                                                                                                           | 92.00  | 185.48                              | 477.8  | 495.1  | 1.000 | 1.000               | 1.000          |                |                |
| 121                                                                                                           | 103.50 | 208.38                              | 544.8  | 558.9  | 1.000 | 1.000               | 1.000          |                |                |
| 122                                                                                                           | 115.00 | 231.28                              | 611.8  | 622.7  | 1.000 | 1.000               | 1.000          |                |                |
| 123                                                                                                           | 126.50 | 254.18                              | 678.8  | 686.5  | 1.000 | 1.000               | 1.000          |                |                |
| 124                                                                                                           | 138.00 | 277.08                              | 745.8  | 750.3  | 1.000 | 1.000               | 1.000          |                |                |
| 125                                                                                                           | 149.50 | 300.00                              | 812.8  | 814.1  | 1.000 | 1.000               | 1.000          |                |                |
| 126                                                                                                           | 161.00 | 322.90                              | 879.8  | 877.9  | 1.000 | 1.000               | 1.000          |                |                |
| 127                                                                                                           | 172.50 | 345.80                              | 946.8  | 941.7  | 1.000 | 1.000               | 1.000          |                |                |
| 128                                                                                                           | 184.00 | 368.70                              | 1013.8 | 1005.5 | 1.000 | 1.000               | 1.000          |                |                |
| 129                                                                                                           | 195.50 | 391.60                              | 1080.8 | 1069.3 | 1.000 | 1.000               | 1.000          |                |                |
| 130                                                                                                           | 207.00 | 414.50                              | 1147.8 | 1133.1 | 1.000 | 1.000               | 1.000          |                |                |
| 131                                                                                                           | 218.50 | 437.40                              | 1214.8 | 1196.9 | 1.000 | 1.000               | 1.000          |                |                |
| 132                                                                                                           | 230.00 | 460.30                              | 1281.8 | 1260.7 | 1.000 | 1.000               | 1.000          |                |                |
| 133                                                                                                           | 241.50 | 483.20                              | 1348.8 | 1324.5 | 1.000 | 1.000               | 1.000          |                |                |
| 134                                                                                                           | 253.00 | 506.10                              | 1415.8 | 1388.3 | 1.000 | 1.000               | 1.000          |                |                |
| 135                                                                                                           | 264.50 | 529.00                              | 1482.8 | 1452.1 | 1.000 | 1.000               | 1.000          |                |                |
| 136                                                                                                           | 276.00 | 551.90                              | 1549.8 | 1515.9 | 1.000 | 1.000               | 1.000          |                |                |
| 137                                                                                                           | 287.50 | 574.80                              | 1616.8 | 1579.7 | 1.000 | 1.000               | 1.000          |                |                |
| 138                                                                                                           | 299.00 | 597.70                              | 1683.8 | 1643.5 | 1.000 | 1.000               | 1.000          |                |                |
| 139                                                                                                           | 310.50 | 620.60                              | 1750.8 | 1707.3 | 1.000 | 1.000               | 1.000          |                |                |
| 140                                                                                                           | 322.00 | 643.50                              | 1817.8 | 1771.1 | 1.000 | 1.000               | 1.000          |                |                |
| 141                                                                                                           | 333.50 | 666.40                              | 1884.8 | 1834.9 | 1.000 | 1.000               | 1.000          |                |                |
| 142                                                                                                           | 345.00 | 689.30                              | 1951.8 | 1898.7 | 1.000 | 1.000               | 1.000          |                |                |
| 143                                                                                                           | 356.50 | 712.20                              | 2018.8 | 1962.5 | 1.000 | 1.000               | 1.000          |                |                |
| 144                                                                                                           | 368.00 | 735.10                              | 2085.8 | 2026.3 | 1.000 | 1.000               | 1.000          |                |                |
| 145                                                                                                           | 379.50 | 758.00                              | 2152.8 | 2090.1 | 1.000 | 1.000               | 1.000          |                |                |
| 146                                                                                                           | 391.00 | 780.90                              | 2219.8 | 2153.9 | 1.000 | 1.000               | 1.000          |                |                |
| 147                                                                                                           | 402.50 | 803.80                              | 2286.8 | 2217.7 | 1.000 | 1.000               | 1.000          |                |                |
| 148                                                                                                           | 414.00 | 826.70                              | 2353.8 | 2281.5 | 1.000 | 1.000               | 1.000          |                |                |
| 149                                                                                                           | 425.50 | 849.60                              | 2420.8 | 2345.3 | 1.000 | 1.000               | 1.000          |                |                |
| 150                                                                                                           | 437.00 | 872.50                              | 2487.8 | 2409.1 | 1.000 | 1.000               | 1.000          |                |                |
| 150-150                                                                                                       | 93.79  | 100.00                              | 93.79  | 93.4   | 0.363 | 0.363               | 0.0            | 0.0            | 0.0            |

**R1750 tristimulus values, chromatic values, and position (p<sub>2</sub>, p<sub>3</sub>, p<sub>4</sub>)**  
Normalized Overall (O) tristimulus values (Y<sub>100</sub>=100), defined by hue angle

| no. | O      | p-normals |        |        | chromatic values |       |                | p-normals      |                |  |
|-----|--------|-----------|--------|--------|------------------|-------|----------------|----------------|----------------|--|
|     |        | X         | Y      | Z      | x                | y     | p <sub>2</sub> | p <sub>3</sub> | p <sub>4</sub> |  |
| 101 | 79.1   | 49.79     | 26.14  | 67.62  | 0.399            | 0.313 | 0.080          |                |                |  |
| 102 | 48.05  | 31.93     | 9.55   | 72.49  | 0.285            | 0.080 | 0.782          |                |                |  |
| 103 | 44.44  | 27.16     | 9.33   | 67.62  | 0.260            | 0.080 | 0.880          |                |                |  |
| 104 | 40.05  | 21.17     | 7.436  | 63.98  | 0.209            | 0.080 | 0.982          |                |                |  |
| 105 | 35.00  | 14.81     | 4.17   | 57.11  | 0.185            | 0.047 | 1.031          |                |                |  |
| 106 | 30.00  | 10.23     | 2.368  | 50.83  | 0.177            | 0.039 | 1.032          |                |                |  |
| 107 | 25.00  | 6.28      | 1.27   | 44.08  | 0.175            | 0.021 | 1.031          |                |                |  |
| 108 | 20.00  | 3.44      | 0.625  | 36.25  | 0.179            | 0.025 | 1.035          |                |                |  |
| 109 | 15.00  | 1.81      | 0.308  | 28.14  | 0.184            | 0.024 | 1.038          |                |                |  |
| 110 | 10.00  | 0.95      | 0.156  | 20.00  | 0.192            | 0.026 | 1.036          |                |                |  |
| 111 | 5.00   | 0.48      | 0.077  | 12.00  | 0.198            | 0.028 | 1.033          |                |                |  |
| 112 | 0.00   | 0.25      | 0.039  | 6.25   | 0.200            | 0.030 | 1.030          |                |                |  |
| 113 | 11.488 | 25.13     | 49.09  | 60.78  | 0.386            | 0.326 | 0.620          |                |                |  |
| 114 | 22.97  | 48.09     | 95.79  | 118.61 | 0.584            | 0.584 | 0.839          |                |                |  |
| 115 | 34.50  | 70.99     | 142.8  | 176.5  | 0.779            | 0.779 | 1.000          |                |                |  |
| 116 | 46.00  | 93.86     | 209.8  | 240.0  | 0.931            | 0.931 | 1.000          |                |                |  |
| 117 | 57.50  | 116.78    | 276.8  | 303.7  | 1.000            | 1.000 | 1.000          |                |                |  |
| 118 | 69.00  | 139.68    | 343.8  | 367.5  | 1.000            | 1.000 | 1.000          |                |                |  |
| 119 | 80.50  | 162.58    | 410.8  | 431.3  | 1.000            | 1.000 | 1.000          |                |                |  |
| 120 | 92.00  | 185.48    | 477.8  | 495.1  | 1.000            | 1.000 | 1.000          |                |                |  |
| 121 | 103.50 | 208.38    | 544.8  | 558.9  | 1.000            | 1.000 | 1.000          |                |                |  |
| 122 | 115.00 | 231.28    | 611.8  | 622.7  | 1.000            | 1.000 | 1.000          |                |                |  |
| 123 | 126.50 | 254.18    | 678.8  | 686.5  | 1.000            | 1.000 | 1.000          |                |                |  |
| 124 | 138.00 | 277.08    | 745.8  | 750.3  | 1.000            | 1.000 | 1.000          |                |                |  |
| 125 | 149.50 | 300.00    | 812.8  | 814.1  | 1.000            | 1.000 | 1.000          |                |                |  |
| 126 | 161.00 | 322.90    | 879.8  | 877.9  | 1.000            | 1.000 | 1.000          |                |                |  |
| 127 | 172.50 | 345.80    | 946.8  | 941.7  | 1.000            | 1.000 | 1.000          |                |                |  |
| 128 | 184.00 | 368.70    | 1013.8 | 1005.5 | 1.000            | 1.000 | 1.000          |                |                |  |
| 129 | 195.50 | 391.60    | 1080.8 | 1069.3 | 1.000            | 1.000 | 1.000          |                |                |  |
| 130 | 207.00 | 414.50    | 1147.8 | 1133.1 | 1.000            | 1.000 | 1.000          |                |                |  |
| 131 | 218.50 | 437.40    | 1214.8 | 1196.9 | 1.000            | 1.000 | 1.000          |                |                |  |
| 132 | 230.00 | 460.30    | 1281.8 | 1260.7 | 1.000            | 1.000 | 1.000          |                |                |  |
| 133 | 241.50 | 483.20    | 1348.8 | 1324.5 | 1.000            | 1.000 | 1.000          |                |                |  |
| 134 | 253.00 | 506.10    | 1415.8 | 1388.3 | 1.000            | 1.000 | 1.000          |                |                |  |
| 135 | 264.50 | 529.00    | 1482.8 | 1452.1 | 1.000            | 1.000 | 1.000          |                |                |  |
| 136 | 276.00 | 551.90    | 1549.8 | 1515.9 | 1.000            | 1.000 | 1.000          |                |                |  |
| 137 | 287.50 | 574.80    | 1616.8 | 1579.7 | 1.000            | 1.000 | 1.000          |                |                |  |
| 138 | 299.00 | 597.70    | 1683.8 | 1643.5 | 1.000            | 1.000 | 1.000          |                |                |  |
| 139 | 310.50 | 620.60    | 1750.8 | 1707.3 | 1.000            | 1.000 | 1.000          |                |                |  |
| 140 | 322.00 | 643.50    | 1817.8 | 1771.1 | 1.000            | 1.000 | 1.000          |                |                |  |
| 141 | 333.50 | 666.40    | 1884.8 | 1834.9 | 1.000            | 1.000 | 1.000          |                |                |  |
| 142 | 345.00 | 689.30    | 1951.8 | 1898.7 | 1.000            | 1.000 | 1.000          |                |                |  |
| 143 | 356.50 | 712.20    | 2018.8 | 1962.5 | 1.000            | 1.000 | 1.000          |                |                |  |
| 144 | 368.00 | 735.10    | 2085.8 | 2026.3 | 1.000            | 1.000 | 1.000          |                |                |  |
| 145 | 379.50 | 758.00    | 2152.8 | 2090.1 | 1.000            | 1.000 | 1.000          |                |                |  |
| 146 | 391.00 | 780.90    | 2219.8 | 2153.9 | 1.000            | 1.000 | 1.000          |                |                |  |
| 147 | 402.50 | 803.80    | 2286.8 | 2217.7 | 1.000            | 1.000 | 1.000          |                |                |  |
| 148 | 414.00 | 826.70    | 2353.8 | 2281.5 | 1.000            | 1.000 | 1.000          |                |                |  |
| 149 | 425.50 | 849.60    | 2420.8 | 2345.3 | 1.000            | 1.000 | 1.000          |                |                |  |
| 150 | 437.00 | 872.50    | 2487.8 | 2409.1 | 1.000            | 1.000 | 1.000          |                |                |  |

**O-D150**    100.00, 24.11    0.0891    -0.2879    0.479    0.0    0.0    0.0

$b_{-R_{100}} = 1.000, b_{-R_{100}} = 1.000, b_{-R_{100}} = 1.000, b_{-R_{100}} = 1.000$      $b_{-R_{100}} = 1.000$      $b_{-R_{100}} = 1.000$      $b_{-R_{100}} = 1.000$