



## COMPARISON

PRODUCT

GRADE

GRADE

ULTRAMARINE BLUE

RS 05

GP 58

( FULL TONE )

1 % PIGMENT LOADING



### COLOR DIFFERENCE REPORT

Colorspace : CIELAB

Observer : 10 Degree

Mode : Reflectance

Spectro : 5100A

| Std name     | Illum       | L*     | a*                | b*                | C*                 | H*                  |       |       |          |
|--------------|-------------|--------|-------------------|-------------------|--------------------|---------------------|-------|-------|----------|
| UMB GP 58 FT | D65         | 25.427 | 8.617             | -26.763           | 28.116             | 287.876             |       |       |          |
| Bt no        | Name        | Illum  | Da*               | Db*               | DL*                | DC*                 | DH*   | dE*   | Comments |
| 1            | UMB RC 5 FT | D65    | 0.363<br>(Redder) | -0.624<br>(Bluer) | 0.133<br>(Lighter) | 0.706<br>(Brighter) | 0.152 | 0.734 | PASS     |

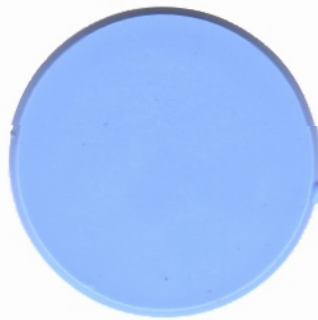
ULTRAMARINE BLUE

RS 05

GP 58

( REDUCED TONE )

0.20 % PIGMENT LOADING



### COLOR DIFFERENCE REPORT

Colorspace : CIELAB

Observer : 10 Degree


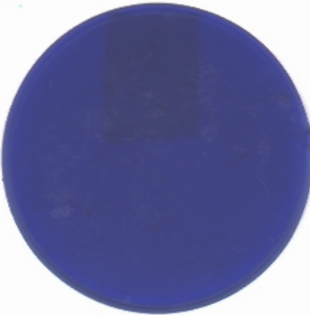
Mode : Reflectance

Spectro : 5100A

| Std name      | Illum        | L*     | a*                  | b*                | C*                 | H*                  |        |       |          |
|---------------|--------------|--------|---------------------|-------------------|--------------------|---------------------|--------|-------|----------|
| UMB GP 58 STD | D65          | 73.151 | -5.280              | -28.577           | 29.061             | 259.500             |        |       |          |
| Bt no         | Name         | Illum  | Da*                 | Db*               | DL*                | DC*                 | DH*    | dE*   | Comments |
| 1             | UMB RC 5 LOT | D65    | -0.353<br>(Greener) | -0.742<br>(Bluer) | -0.454<br>(Darker) | 0.795<br>(Brighter) | -0.209 | 0.939 | PASS     |





## COMPARISON

| PRODUCT  | GRADE  | GRADE  |
|--|--|--|
| ULTRAMARINE BLUE<br>( FULL TONE )<br>1 % PIGMENT LOADING | RC 03<br> | U 206<br> |

### COLOR DIFFERENCE REPORT

| Colorspace : CIELAB            |                     | Observer : 10 Degree | Mode : Reflectance | Spectro : 5100A      |                     |                      |            |            |                 |
|--------------------------------|---------------------|----------------------|--------------------|----------------------|---------------------|----------------------|------------|------------|-----------------|
| <u>Std name</u><br>UMB U206 FT | <u>Illum</u><br>D65 | <u>L*</u><br>26.063  | <u>a*</u><br>7.444 | <u>b*</u><br>-23.009 | <u>C*</u><br>24.183 | <u>H*</u><br>287.957 |            |            |                 |
| <u>Bt no</u>                   | <u>Name</u>         | <u>Illum</u>         | <u>Da*</u>         | <u>Db*</u>           | <u>Dl*</u>          | <u>Dc*</u>           | <u>DH*</u> | <u>dE*</u> | <u>Comments</u> |
| 1                              | UMB RC 03 FT        | D65                  | 0.124<br>(Redder)  | -0.875<br>(Bluer)    | -0.009<br>(Darker)  | 0.871<br>(Brighter)  | -0.149     | 0.884      | PASS            |

| PRODUCT  | GRADE  | GRADE  |
|--|--|--|
| ULTRAMARINE BLUE<br>( REDUCED TONE )<br>0.20 % PIGMENT LOADING | RC 03<br> | U 206<br> |

### COLOR DIFFERENCE REPORT

| Colorspace : CIELAB             |                     | Observer : 10 Degree | Mode : Reflectance    | Spectro : 5100A      |                     |                      |            |            |                 |
|---------------------------------|---------------------|----------------------|-----------------------|----------------------|---------------------|----------------------|------------|------------|-----------------|
| <u>Std name</u><br>UMB U 206 RT | <u>Illum</u><br>D65 | <u>L*</u><br>74.862  | <u>a*</u><br>-4.565   | <u>b*</u><br>-24.682 | <u>C*</u><br>25.101 | <u>H*</u><br>259.489 |            |            |                 |
| <u>Bt no</u>                    | <u>Name</u>         | <u>Illum</u>         | <u>Da*</u>            | <u>Db*</u>           | <u>Dl*</u>          | <u>Dc*</u>           | <u>DH*</u> | <u>dE*</u> | <u>Comments</u> |
| 1                               | UMB RC 03 RT        | D65                  | 0.039<br>(Less Green) | 0.891<br>(Less Blue) | 0.317<br>(Lighter)  | -0.883<br>(Duller)   | -0.126     | 0.947      | PASS            |



## COMPARISON

**PRODUCT**

**GRADE**

**GRADE**

**ULTRAMARINE BLUE**

**RC 03**

**5008**

**( FULL TONE )**

**1 % PIGMENT LOADING**



### COLOR DIFFERENCE REPORT

| Colorspace : CIELAB |              | Observer : 10 Degree | Mode : Reflectance |                   | Spectro : 5100A    |                     |       |       |          |
|---------------------|--------------|----------------------|--------------------|-------------------|--------------------|---------------------|-------|-------|----------|
| Std name            | Illum        | L*                   | a*                 | b*                | C*                 | H*                  |       |       |          |
| UMB 5008 FT         | D65          | 26.054               | 7.568              | -23.884           | 25.054             | 287.611             |       |       |          |
| Bt no               | Name         | Illum                | Da*                | Db*               | DL*                | DC*                 | DH*   | dE*   | Comments |
| 1                   | UMB RC 03 FT | D65                  | 0.109<br>(Redder)  | -0.118<br>(Bluer) | -0.085<br>(Darker) | 0.146<br>(Brighter) | 0.068 | 0.182 | PASS     |

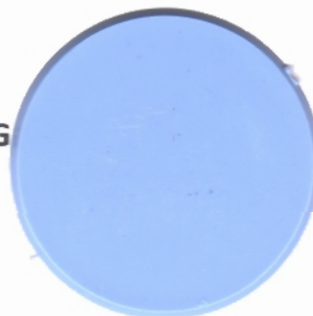
**ULTRAMARINE BLUE**

**RC 03**

**5008**

**( REDUCED TONE )**


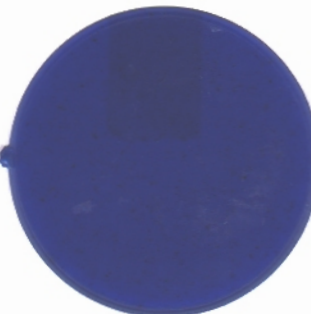
**0.20 % PIGMENT LOADING**



### COLOR DIFFERENCE REPORT



| Colorspace : CIELAB |               | Observer : 10 Degree | Mode : Reflectance  |                   | Spectro : 5100A    |                     |        |     |          |
|---------------------|---------------|----------------------|---------------------|-------------------|--------------------|---------------------|--------|-----|----------|
| Std name            | Illum         | L*                   | a*                  | b*                | C*                 | H*                  |        |     |          |
| UMB 5008 RT         | D65           | 75.448               | -3.484              | -22.949           | 23.212             | 261.335             |        |     |          |
| Bt no               | Name          | Illum                | Da*                 | Db*               | DL*                | DC*                 | DH*    | dE* | Comments |
| 1                   | UMV RC 03 RTT | D65                  | -0.991<br>(Greener) | -1.136<br>(Bluer) | -0.365<br>(Darker) | 1.285<br>(Brighter) | -0.788 | 1   | PASS     |

## COMPARISON

| PRODUCT   | GRADE | GRADE   |
|---|-------|---|
| ULTRAMARINE BLUE<br>( FULL TONE )<br>1 % PIGMENT LOADING                          | RC 02 | P 2   |
|  |       |  |

### COLOR DIFFERENCE REPORT

| Colorspace : CIELAB |              | Observer : 10 Degree | Mode : Reflectance   | Spectro : 5100A   |                    |                     |        |       |          |
|---------------------|--------------|----------------------|----------------------|-------------------|--------------------|---------------------|--------|-------|----------|
| Std name            | Illum        | L*                   | a*                   | b*                | C*                 | H*                  |        |       |          |
| UMB P2 FT           | D65          | 26.459               | 6.326                | -23.216           | 24.062             | 285.272             |        |       |          |
| Sl no               | Name         | Illum                | Da*                  | Db*               | DL*                | DC*                 | DH*    | dE*   | Comments |
| 1                   | UMB RC 02 FT | D65                  | -0.011<br>(Less Red) | -0.120<br>(Bluer) | -0.020<br>(Darker) | 0.113<br>(Brighter) | -0.042 | 0.122 | PASS     |

| PRODUCT   | GRADE | GRADE   |
|---|-------|---|
| ULTRAMARINE BLUE<br>( REDUCED TONE )<br>0.20 % PIGMENT LOADING                      | RS 02 | P 2   |
|  |       |  |

### COLOR DIFFERENCE REPORT

| Colorspace : CIELAB |              | Observer : 10 Degree | Mode : Reflectance    | Spectro : 5100A   |                    |                    |       |      |          |
|---------------------|--------------|----------------------|-----------------------|-------------------|--------------------|--------------------|-------|------|----------|
| Std name            | Illum        | L*                   | a*                    | b*                | C*                 | H*                 |       |      |          |
| UMB P2 RT           | D65          | 73.855               | -6.384                | -24.801           | 25.609             | 255.535            |       |      |          |
| Sl no               | Name         | Illum                | Da*                   | Db*               | DL*                | DC*                | DH*   | dE*  | Comments |
| 1                   | UMB RC 02 RT | D65                  | 0.645<br>(Less Green) | -0.044<br>(Bluer) | 1.023<br>(Lighter) | -0.110<br>(Duller) | 0.637 | 0.90 | PASS     |



## COMPARISON

| PRODUCT  | GRADE     | GRADE     |
|--|-----------|-----------|
| ULTRAMARINE BLUE<br>( FULL TONE )<br>1 % PIGMENT LOADING | DC 62<br> | EP 62<br> |

### COLOR DIFFERENCE REPORT

| Colorspace : CIELAB             |                     | Observer : 10 Degree | Mode : Reflectance   | Spectro : 5100A      |                     |                      |            |            |                 |
|---------------------------------|---------------------|----------------------|----------------------|----------------------|---------------------|----------------------|------------|------------|-----------------|
| <u>Std name</u><br>UMB EP 62 FT | <u>Illum</u><br>D65 | <u>L*</u><br>25.922  | <u>a*</u><br>8.313   | <u>b*</u><br>-27.162 | <u>C*</u><br>28.406 | <u>H*</u><br>287.046 |            |            |                 |
| <u>Bt no</u>                    | <u>Name</u>         | <u>Illum</u>         | <u>Da*</u>           | <u>Db*</u>           | <u>DL*</u>          | <u>DC*</u>           | <u>DH*</u> | <u>dE*</u> | <u>Comments</u> |
| 1                               | UMB DC 62 FT        | D65                  | -0.288<br>(Less Red) | 0.892<br>(Less Blue) | -0.320<br>(Darker)  | -0.937<br>(Duller)   | -0.015     | 0.990      | PASS            |

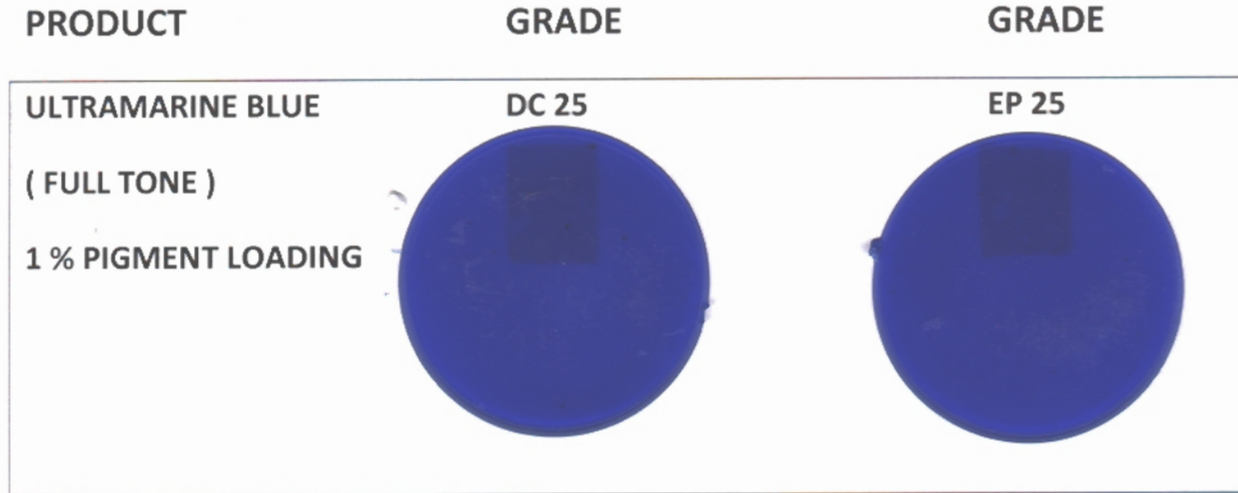
| PRODUCT  | GRADE     | GRADE     |
|--|-----------|-----------|
| ULTRAMARINE BLUE<br>( REDUCED TONE )<br>0.20 % PIGMENT LOADING | DC 62<br> | EP 62<br> |

### COLOR DIFFERENCE REPORT

| Colorspace : CIELAB             |                     | Observer : 10 Degree | Mode : Reflectance    | Spectro : 5100A      |                     |                      |            |            |                 |
|---------------------------------|---------------------|----------------------|-----------------------|----------------------|---------------------|----------------------|------------|------------|-----------------|
| <u>Std name</u><br>UMB EP 62 RT | <u>Illum</u><br>D65 | <u>L*</u><br>74.719  | <u>a*</u><br>-5.479   | <u>b*</u><br>-26.546 | <u>C*</u><br>27.106 | <u>H*</u><br>258.307 |            |            |                 |
| <u>Bt no</u>                    | <u>Name</u>         | <u>Illum</u>         | <u>Da*</u>            | <u>Db*</u>           | <u>DL*</u>          | <u>DC*</u>           | <u>DH*</u> | <u>dE*</u> | <u>Comments</u> |
| 1                               | UMB DC 62 RT        | D65                  | 0.216<br>(Less Green) | -0.442<br>(Bluer)    | -0.358<br>(Darker)  | 0.391<br>(Brighter)  | 0.299      | 0.608      | PASS            |



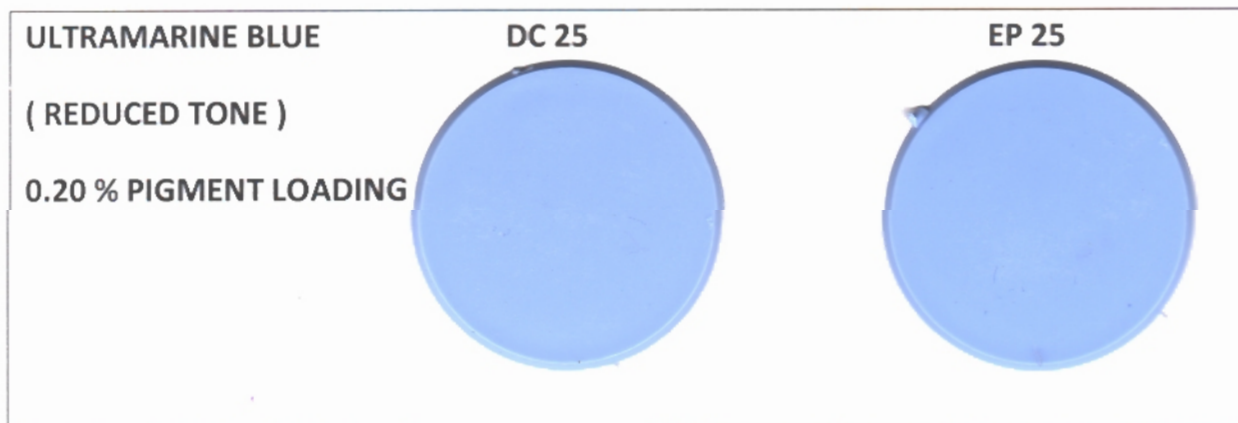
## COMPARISON



### COLOR DIFFERENCE REPORT

Colorspace : CIELAB      Observer : 10 Degree      Mode : Reflectance      Spectro : 5100A

| Std name     | Illum        | L*     | a*                | b*                   | C*                 | H*                 |       |       |          |
|--------------|--------------|--------|-------------------|----------------------|--------------------|--------------------|-------|-------|----------|
| UMB EP 25 FT | D65          | 26.259 | 7.422             | -24.174              | 25.288             | 287.097            |       |       |          |
| Bt no        | Name         | Illum  | Da*               | Db*                  | DL*                | DC*                | DH*   | dE*   | Comments |
| 1            | UMB DC 25 FT | D65    | 0.004<br>(Redder) | 0.020<br>(Less Blue) | -0.040<br>(Darker) | -0.018<br>(Duller) | 0.010 | 0.045 | PASS     |

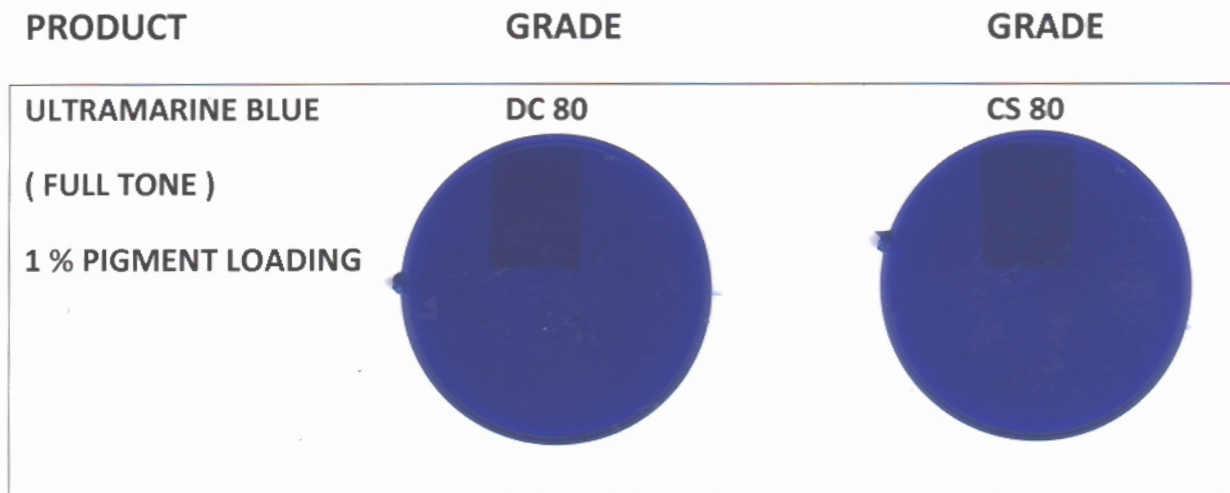


### COLOR DIFFERENCE REPORT

Colorspace : CIELAB      Observer : 10 Degree      Mode : Reflectance      Spectro : 5100A

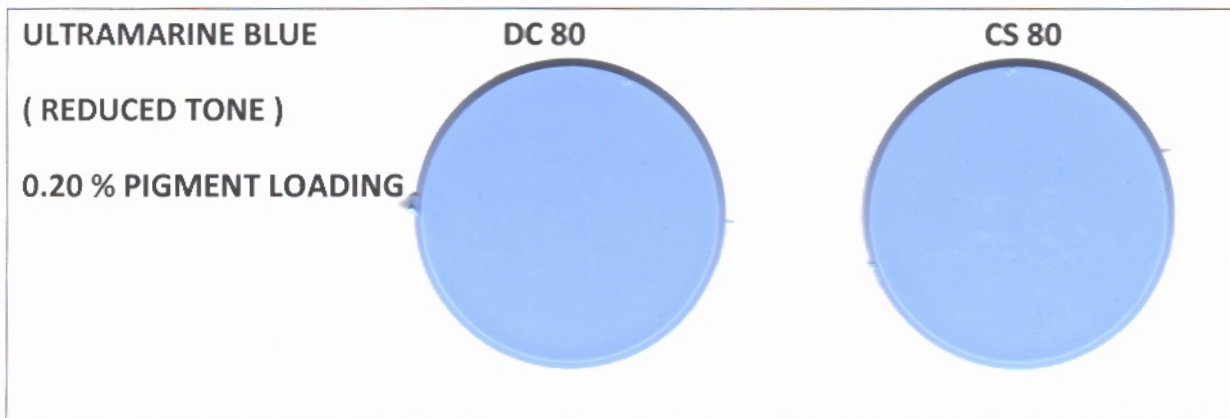
| Std name     | Illum        | L*     | a*                    | b*                   | C*                 | H*                 |       |       |          |
|--------------|--------------|--------|-----------------------|----------------------|--------------------|--------------------|-------|-------|----------|
| UMB EP 25 RT | D65          | 76.039 | -4.034                | -22.981              | 23.332             | 260.012            |       |       |          |
| Bt no        | Name         | Illum  | Da*                   | Db*                  | DL*                | DC*                | DH*   | dE*   | Comments |
| 1            | UMB DC 25 RT | D65    | 0.055<br>(Less Green) | 0.315<br>(Less Blue) | -0.188<br>(Darker) | -0.320<br>(Duller) | 0.000 | 0.371 | PASS     |

## COMPARISON



### COLOR DIFFERENCE REPORT

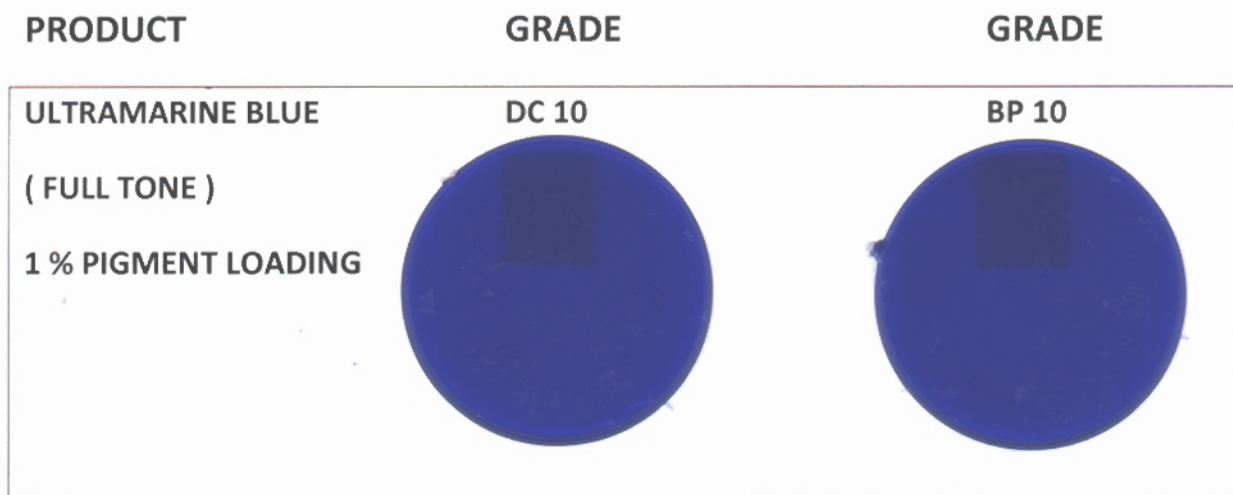
| Colorspace : CIELAB |              | Observer : 10 Degree |                      | Mode : Reflectance   |                    | Spectro : 5100A    |        |       |          |
|---------------------|--------------|----------------------|----------------------|----------------------|--------------------|--------------------|--------|-------|----------|
| Std name            | Illum        | L*                   | a*                   | b*                   | C*                 | H*                 |        |       |          |
| UMB CS 80 FT        | D65          | 25.633               | 6.609                | -23.944              | 24.839             | 285.461            |        |       |          |
| Bt no               | Name         | Illum                | Da*                  | Db*                  | DL*                | DC*                | DH*    | dE*   | Comments |
| 1                   | UMB DC 80 FT | D65                  | -0.442<br>(Less Red) | 1.028<br>(Less Blue) | -0.263<br>(Darker) | -1.108<br>(Duller) | -0.156 | 1.149 | FAIL     |



### COLOR DIFFERENCE REPORT

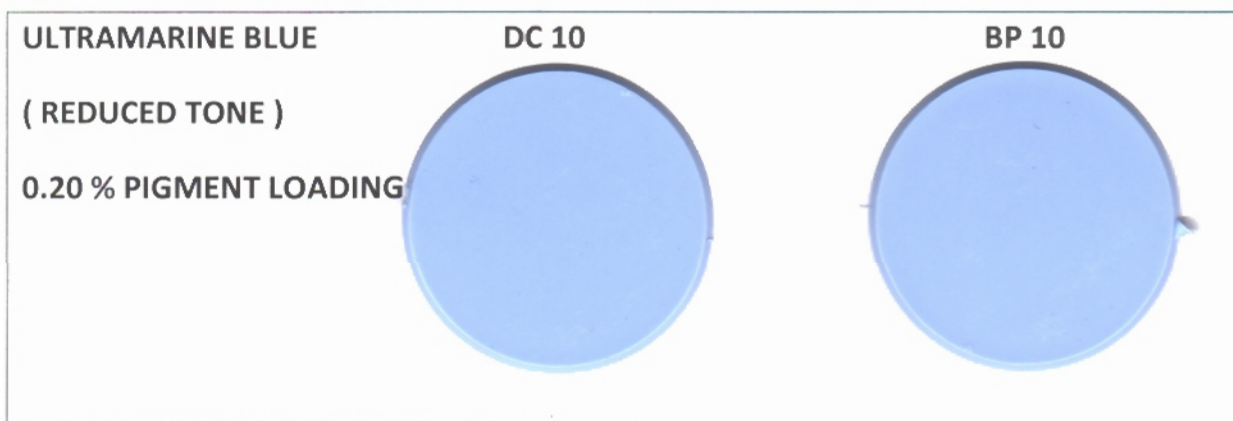
| Colorspace : CIELAB |              | Observer : 10 Degree |                       | Mode : Reflectance |                    | Spectro : 5100A     |       |       |          |
|---------------------|--------------|----------------------|-----------------------|--------------------|--------------------|---------------------|-------|-------|----------|
| Std name            | Illum        | L*                   | a*                    | b*                 | C*                 | H*                  |       |       |          |
| UMB CS 80 RT        | D65          | 75.249               | -5.055                | -23.512            | 24.049             | 257.835             |       |       |          |
| Bt no               | Name         | Illum                | Da*                   | Db*                | DL*                | DC*                 | DH*   | dE*   | Comments |
| 1                   | UMB DC 80 RT | D65                  | 0.011<br>(Less Green) | -0.761<br>(Bluer)  | -0.586<br>(Darker) | 0.742<br>(Brighter) | 0.168 | 0.961 | PASS     |

## COMPARISON



### COLOR DIFFERENCE REPORT

|                     |              |                      |                      |                      |                    |                    |            |            |                 |
|---------------------|--------------|----------------------|----------------------|----------------------|--------------------|--------------------|------------|------------|-----------------|
| Colorspace : CIELAB |              | Observer : 10 Degree |                      | Mode : Reflectance   |                    | Spectro : 5100A    |            |            |                 |
| <u>Std name</u>     | <u>Illum</u> | <u>L*</u>            | <u>a*</u>            | <u>b*</u>            | <u>C*</u>          | <u>H*</u>          |            |            |                 |
| UMB BP 10 FT        | D65          | 26.626               | 6.523                | -23.189              | 24.089             | 285.741            |            |            |                 |
| <u>Bt no</u>        | <u>Name</u>  | <u>Illum</u>         | <u>Da*</u>           | <u>Db*</u>           | <u>DL*</u>         | <u>DC*</u>         | <u>DH*</u> | <u>dE*</u> | <u>Comments</u> |
| 1                   | UMB DC 10 FT | D65                  | -0.683<br>(Less Red) | 0.056<br>(Less Blue) | 0.020<br>(Lighter) | -0.230<br>(Duller) | -0.645     | 0.686      | PASS            |



### COLOR DIFFERENCE REPORT

|                     |              |                      |                     |                      |                    |                    |            |            |                 |
|---------------------|--------------|----------------------|---------------------|----------------------|--------------------|--------------------|------------|------------|-----------------|
| Colorspace : CIELAB |              | Observer : 10 Degree |                     | Mode : Reflectance   |                    | Spectro : 5100A    |            |            |                 |
| <u>Std name</u>     | <u>Illum</u> | <u>L*</u>            | <u>a*</u>           | <u>b*</u>            | <u>C*</u>          | <u>H*</u>          |            |            |                 |
| UMB BP 10 RT        | D65          | 76.986               | -3.769              | -19.721              | 20.078             | 259.148            |            |            |                 |
| <u>Bt no</u>        | <u>Name</u>  | <u>Illum</u>         | <u>Da*</u>          | <u>Db*</u>           | <u>DL*</u>         | <u>DC*</u>         | <u>DH*</u> | <u>dE*</u> | <u>Comments</u> |
| 1                   | UMB DC 10 RT | D65                  | -0.083<br>(Greener) | 0.120<br>(Less Blue) | 0.266<br>(Lighter) | -0.102<br>(Duller) | -0.104     | 0.303      | PASS            |