VEZELINSTITUUT T.N.O.

(FIBRE RESEARCH INSTITUTE T.N.O.)

Delft – Holland – P.O. Box 110 – Schoemakerstraat 97 – Telephone 01730-37000 – Bankers: R. Mees & Zoonen, Delft

Textile, paper and fibre research and testing

Your ref.:

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Our ref.:

FT 457-Frie/MR

Enclosure(s):

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Dr. G. Wyszecki
National Research Council
Division of Physics
Ottawa k 1 A OR 6
Canada.

DELFT, 27th February 1975,

Dear Dr. Wyszecki,

The Paint Research Association in the Netherlands (VVVR) has nearly finished a two year research project to test the applicability of several color differences formulas. They decided to gather new data, typical for their interest.
For 10 colors the correlation between visual assessment and calculated differences is studied.
The information obtained is, for the moment, available only for members of the working group who sponsor the project. Publication is not allowed for a period of 2 years after the study has been completed.
In view however of the importance of the subject the VVVR has decided to authorize me to inform you on the results obtained. This information should be restricted to the members of your subcommittee.
Enclosed I send you some details and the results. In between very important progress has been made. I developed a new formula which is equally successful for thresholds as for your color differences matching data based on color differences of 6.4 CIE units. I do not intend to publish the results in the near future as I would first solve the question of the industrial tolerances.

With kind regards,
Yours sincerely

Fibre Research Institute TNO.

Mackinney

VVVR project: color difference

Samples : high gloss paints.
per color a standard sample and 20 samples with random distribution around the standard
Sample size : 20 x 10 cm
Observational conditions : artificial or natural daylight
Observers : 14 - 17 experienced observers from the factory personal
Scaling method : paired comparison
Criterion : color difference only
Instrumentation : TNO small sphere Color-Eye signature model
Measurement : differential tristimulus measurement.
specular for colors green and grey; non specular for the other colors
Size of color differences : 0-3 CIE 1976 (Lab).

Results:

Standard color	x	y	Y%	correlation coefficient				
				CIE 1976 (Luv)	(Lab)	NBS	FMC-2	FMC-1 modified [1]
green	0,214	0,356	16,1	0,92	0,92	0,88	0,80	0,93
grey	0,289	0,296	21,3	0,82	0,91	0,91	0,94	0,94
blue	0,160	0,168	7,3	0,67	0,57	0,54	0,72	0,75
dark green	0,249	0,359	2,9	0,97	0,93	0,71	0,84	0,79
red	0,620	0,332	8,1	0,25	0,63	0,69	0,77	0,86
yellow	0,478	0,483	62,8	0,84	0,71	0,89	0,89	0,89
light blue	0,244	0,275	46,5	0,83	0,91	0,86	0,80	0,92
white	0,314	0,325	69,9	0,87	0,89	0,88	0,87	0,96
pink	0,380	0,296	34,7	0,92	0,95	0,87	0,80	0,92
dark purple	0,322	0,219	2,2	0,94	0,91	0,91	0,88	0,85
					,833			,881

[1] Helmholtz Symposium
Color Metrics
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l = 0,08
f = 1,0