

Subtractive colour mixing

Principle and equipment

Principle

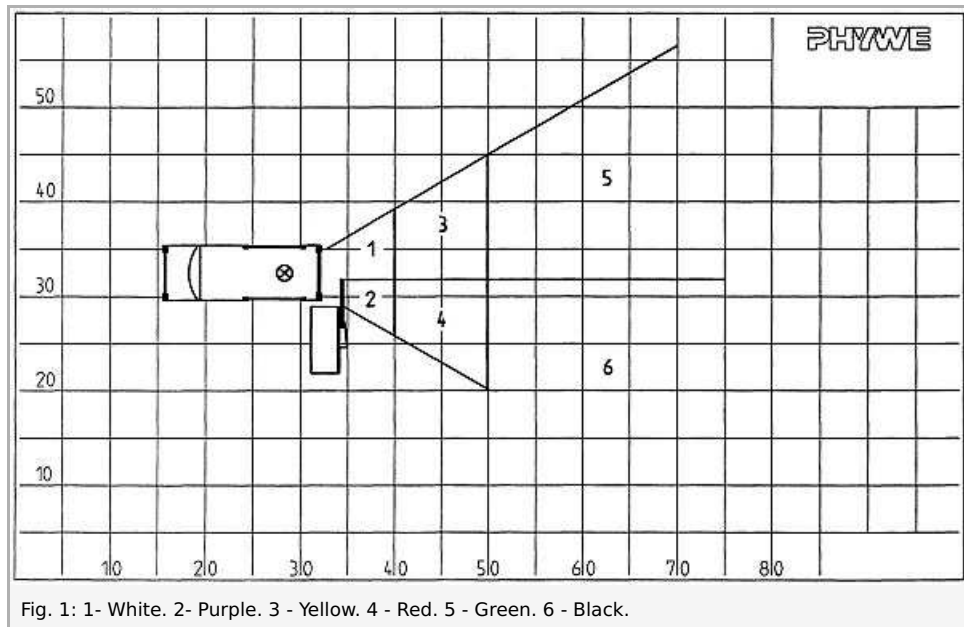
Demonstrate how colours can be mixed subtractively by sending white light through coloured filters one after another.

Equipment

Position No.	Material	Order No.	Quantity
1	Demo Physics board with stand	02150-00	1
2	PHYWE Multitap transformer, DC: 2/4/6/8/10/12 V, 5 A / AC: 2/4/6/8/10/12/14 V, 5 A	13533-93	1
3	Light box 12V/20W,w.magn.base	09804-00	1
4	Diaphragm w. holder, magnet held	08270-10	1
5	Colour filter set, subtractive (yellow, magenta, cyan)	09808-00	1

Set-up and procedure

- Place the light box on the magnet optics panel and generate a divergent light beam.
- Insert the yellow filter partially into the mounting on the lamp so that a white zone remains on the magnet optics panel.
- Insert the cyan filter, but not as far as the yellow one.
- Attach the third filter (purple) to the diaphragm and push it into the middle of the divergent light beam (Fig. 1).
- Observe which mixed colours result from the successive passing of light through different filters (Fig. 1).



Observation and evaluation

Subtractive colour mixing of	Mixed colour
Yellow and cyan	Green
Yellow and purple	Red
Yellow, purple and cyan	Black

Remark

By changing the positions of the cyan and yellow filters, it can additionally be shown that subtractive colour mixing of cyan and purple results in blue.