Colour vision deficiency

Electrical workers

Guideline

Colour vision deficiency

This guideline has been produced to provide guidance for persons with colour vision deficiency and their prospective employers in relation to working in the electrical industry.

An electrical worker may still be able to perform electrical work in a fit and safe manner while having a degree of colour vision deficiency. Colour vision deficiency within the electrical industry brings some additional risks. These risks need to be identified and mitigated to reduce any potential for dangerous situations, both for the electrical worker and the consumer.

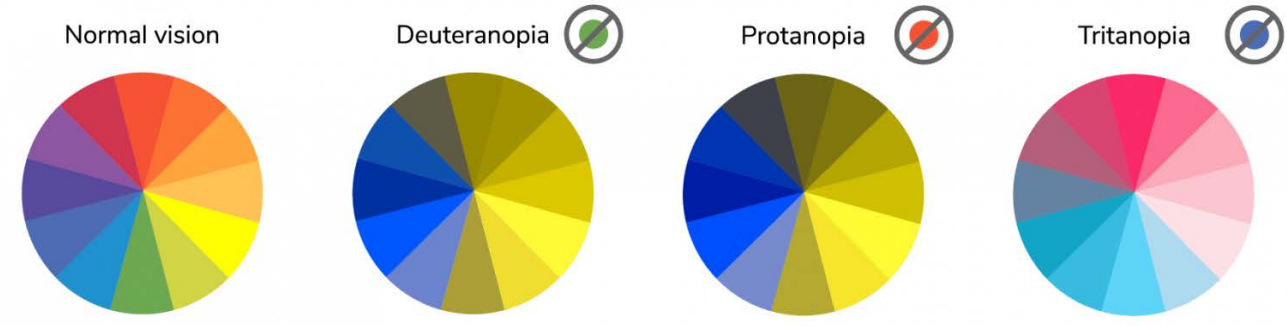
Early detection and management of colour vision deficiency may prevent these situations from occurring.

Types

There are three main types of genetic colour vision deficiency which can range from mild to severe:

- deuteranopia/deuteranomaly relates to a green deficiency
- protanopia/protanomaly relates to a red deficiency
- tritanopia/tritanomaly relates to a blue deficiency.

Colour Wheel



Non inherited forms of colour vision deficiency may also develop over time due to other medical conditions and/or trauma.

Testing

An initial test for colour vision deficiency the electrical worker may do is to identify individual cable cores with the colours listed in Table 3.4 of the AS/NZS 3000:2018 Wiring Rules. The test should be conducted under controlled conditions to ensure the following:

- The candidate is not able to ascertain the correct answer by process of elimination e.g. not using a three-core cable stripped back to expose the inner cores.
- Separate sections of cable cores can be correctly identified individually and when in close proximity to the other relevant colours e.g. red and green.

If a colour vision deficiency is identified, the individual should attend a medical practitioner or certified optometrist for further tests to determine how any colour vision deficiency can be managed.

Management of colour vision deficiency should be in place prior to employment of an electrical worker (or as soon as practicable following identification thereof).

It is recommended the following actions be taken:

- The colour vision deficiency and management method is noted on the employee's file.
- In the case of group training, the electrical worker is advised to notify all host employers.

AS/NZS 3000:2018 Table 3.4 Colours of cable cores.

Function	Insulation Colour
Protective Earth	Green/Yellow
Equipotential bonding	Green/Yellow
Neutral	Black or Light Blue
Active	Any colour other than green, yellow, green/yellow, black or light blue.

Workplace guidance

An employer must, so far as practicable, provide and maintain a working environment that is safe and without risk to the employee's health and wellbeing.

An employer of a licensed electrical worker or electrical apprentice having colour vision deficiency should conduct a risk assessment of the workplace. Suitable adjustments should be made where practicable, for example:

- improved lighting
- use of a colour chart
- comparison with known conductors
- any other available adjustments.

Responsibility

Employers have a responsibility to ensure that electrical workers can adequately perform the tasks assigned to them. Employers are responsible for the effective supervision and safety of their electrical apprentices.

Who we are

We are Victoria's safety regulator for electricity, gas and pipelines.

Our role is to ensure that Victorian gas and electricity industries are safe and meet community expectations. We are also responsible for licensing and registering electricians, and educating the community about energy safety.

More information is available on the Energy Safe Victoria website: www.esv.vic.gov.au

References

Victorian Occupational Health and Safety Act 2004
AS/NZS 3000 Wiring Rules
Better Health – Victorian State Government
Sydney Eye Hospital Foundation