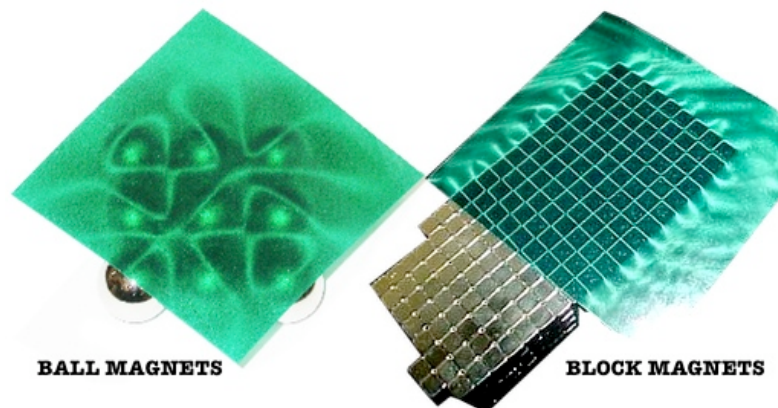


Magnetic Viewing Film



The Magnetic Viewing Film is used to show where magnetic pole faces exist on permanent magnets and direct current (d.c.) electromagnetic devices.

The film changes colour as a result of interaction with the lines of magnetic field passing through the film. The Magnetic Viewing Film is a thin flexible sheet containing colloidal **nickel flakes** suspended in oil as gelatinous microcapsules coated onto the plastic sheet. The nickel flakes, being ferromagnetic, align with the lines of magnetic flux (the magnetic field lines) and they can rotate freely because of the gelatinous microcapsules.

When the magnetic field lines are **perpendicular** to the plane of the Magnetic Viewing Film, the flakes rotate to align with the field lines and make the Magnetic Viewing Film appear a **darker green**. This is shown if the Magnetic Viewing Film is put directly on the pole face of a permanent magnet.

When the magnetic field lines are **parallel** to and also in the plane of the Magnetic Viewing Film, the flakes rotate to align with the field lines and make the film appear a **lighter green**. This is shown if the Magnetic Viewing Film is put directly on the pole face of a flexible magnet (such as flexible magnetic rubber) where the sheet has multiple poles across its surface and the lighter lines show the transition from a North pole face to a South Pole face.

The darker regions therefore show a Pole face (it will be a North or a South; the Magnetic Viewing Film does not show which polarity – you would need a polarity checker to measure for a North or South pole). **The lighter regions show where the magnetic lines are in the plane of the Film** and therefore allow an indication of the field patterns present.

To view another magnet's pattern, simply put the Magnetic Viewing Film on the magnet you wish to view. The changes in colour shade will be nearly instant. To 'clear' or 'reset' the Magnetic Viewing Film display to make the green colour appear more uniform again, consider moving a larger block magnet across the surface (it will not completely set the colour to a single shade as the flakes are reacting with the moving magnetic field but it will be satisfactory for most purposes).