



# New Products Update

teaching resources

A record number of new products have become available since the summer issue No 16 of News & Views. These range from new smart liquids to traditional, but unusual, craft materials – all of which mirror the wide spectrum of creative activities encompassed by design and technology.

Once again, it is good to know that students and pupils are now enjoying equal access to resources that stretch the imagination of professional practitioners. The newer smart materials are especially suitable for A-level students seeking novel solutions to old problems or creating products inspired by the novel properties of the materials themselves. An ideal strategy for A level course leaders might be to get together a handling box or sample box with as many of these key resources as possible for students to experience.

## Smart Materials

Several new photochromic materials have been added to the original photochromic pigment range (IT9 014). Smart beads are an example of a photochromic toy that change colour dramatically when exposed to natural light – even in overcast conditions. (They also change colour when exposed to Ultra Violet light from say a UV LED: stock no E02 030) UV fluid is liquid paraffin containing just a minute trace of the same photochromic dye. Like the beads, this material undergoes a dramatic colour change when exposed to sunlight or UV from LEDs.

The source dye responsible for the behaviour of most photochromic products, including sunglasses and spectacles, is also now available (with more colours to follow shortly). This can be added experimentally to plastics such as polythene and liquids such as paraffin, to create spectacular colour changing effects. (Note: the source dye, supplied in powder form, must be mixed with the host material in a typical ratio of 1: 2000 and the mixing time might need to be extended to several minutes before the dye becomes active.)

**Photochromic Pigment** – stock code IT9 014 – £1.67



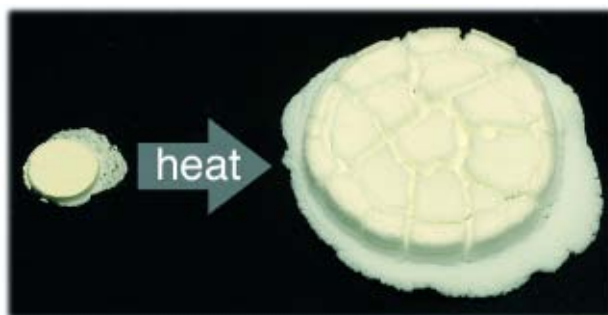
**UV LED** – stock code E02 030 – £0.80



## Micro Balloons...

Another new group of smart materials, also in powder form, includes Expansel and sodium polyacrylate. Expansel looks like talcum powder, but actually consists of micron-size balloons containing a hydrocarbon fluid. When these are heated (above 110°C), the balloon skins soften and the fluid becomes a gas that permanently expands each balloon. When a mass of Expansel is heated, it therefore undergoes a massive volume increase. In its expanded state, Expansel is added to other materials such as concrete, plaster and polymers to reduce density – giving these materials the characteristics of foam with tiny well dispersed air pockets.

The really smart way to use Expansel is to incorporate it into materials unexpanded and then apply heat treatment. For example, Expansel can be mixed with printing ink. If heated after printing, the ink on a document will rise in relief. Similarly, if Expansel is mixed with paper pulp, the resultant paper will expand where locally heated. This is a method used to make paper for Braille documents.



**Expansel** – stock code 233-128 – £2.65



### UV Fluid

Colour	Stock Code	Price
Red	UVL 001	£2.65
Purple	UVL 002	£2.65
Yellow	UVL 003	£2.65
Green	UVL 004	£2.65

### Smart Beads

Qty	Colour	Stock Code	Price
50 beads	10 of each col.	233-061	£2.65
100 beads	Purple	233-061A	£4.25
100 beads	Orange	233-061B	£4.25
100 beads	Green	233-061C	£4.25
100 beads	Yellow	233-061D	£4.25
100 beads	Red	233-061E	£4.25

## Let it snow!

Sodium polyacrylate – sometimes called artificial snow – is a hydrogel that expands rapidly as it absorbs vast quantities of water. Controlled amounts introduced into a water jet produce copious quantities of snow for film sets etc. The material is non-toxic and the process is reversible and so it can be used to store up to 700 times its own weight of water in applications ranging from growing plants to drying up water spills.



☑ Magic Snow		
Qty	Stock Code	Price
2L	233-055	£50.00
50ml	233-055A	£2.08

## Chopped Carbon Fibre

Students at St. Martins Central School are set a task each year to combine new and traditional materials for the creation of entirely new composites and hybrids. They recently produced functional stools consisting of just layers of sack cloth (draped over a mould) impregnated with starch. The college is currently using some of our new materials such as chopped carbon fibre. Added in just tiny amounts, this can transform the strength of host materials and is therefore used to reinforce concrete, polymers, plaster products – and even paper.



☑ Chopped Carbon Fibre – stock code 233-145A – £7.95

## Flock

Another familiar fibre, now making something of a fashion comeback, is flock – the short polyester fibres applied 'en masse' to a sticky surface to provide texture. Only one UK company now makes this product, and we have been very lucky to source the raw material in several colours. It is very easy to use: where you want it to stick, you apply adhesive – e.g., white glue or Spraymount – and wait until the surface is sticky. The flock is then sprinkled on and lightly rubbed down. Adhesive can be applied through a stencil to obtain a sharp flock boundary or, for example, it can be printed using a soft rubber pad.

Flock is often added to the inside of containers to provide a contrasting finish - or added inside or outside to disguise a poor surface. Whatever the application, a number of leading designers are using it in many unusual and innovative ways.



☑ Flock		
Colour	Stock Code	Price
Black	233-137	£4.51
White	233-138	£4.51
Red	233-139	£4.51
Purple	233-140	£4.51
Blue	233-141	£4.51
Turquoise	233-142	£4.51
Green	233-143	£4.51
Yellow	233-144	£4.51

## New graphics products

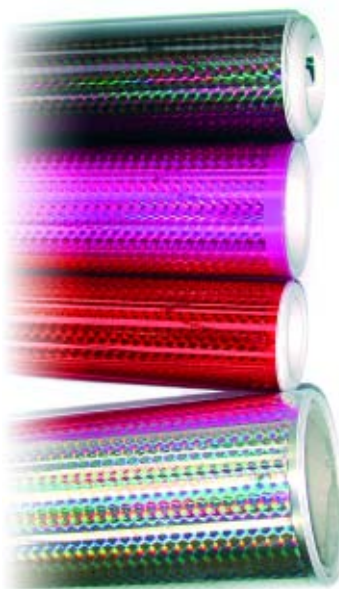
Many colleagues have asked TEP and TR to source more of the materials used in hot block printing. This is the process where a heated tool or printing block is used to transfer metallic foil to paper or plastic - e.g., the gold lettering on book spines. We can now supply a wide range of such foils at very low cost – typically less than 10p for a metre length of 100mm wide material. The material consists of an ultra-thin metallic deposit on heat-resistant mylar film. The metallic coating is backed with a heated-activated adhesive, so if you place the foil on paper and applied a heated tool (e.g., soldering iron), the metallic film sticks to the paper – or other suitable substrate. The foils can also be cut up and stuck down by other means to provide metallic or colour effects.

☑ Hot-blocking Foils		
Colour	Stock Code	Price
Gold	233-130	£13.78
Silver	233-131	£13.78
Blue	233-132	£14.84
Yellow	233-133	£14.84
Black	233-134	£14.84
Grey	233-135	£18.02
Red	233-136	£14.84



## Foils

For those who really want to incorporate 'optical fireworks' into their graphics, a new collection of self-adhesive mosaic foils is available. These are thicker and more expensive than conventional hot blocking foil, but provide intense colour and spectacular light-scattering effects.



☑ Mosaic Foil		
Colour	Stock Code	Price per m
Silver	243-022	£12.72
Red	243-023	£12.72
Purple	243-024	£12.72
Black	243-025	£12.72

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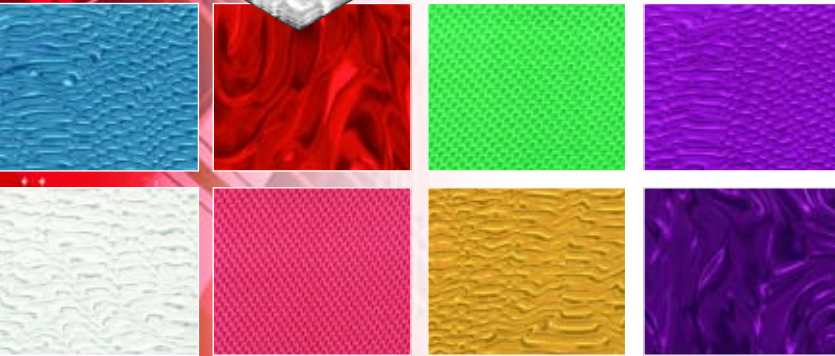
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## New lenticular sheet types

The extraordinary popularity of our image-morphing lenticular sheet (PL1 036), has led to the acquisition of no less than 10 additional types. At the same time as providing depth illusions, these sheets offer amazing colours and diverse optical effects. We are now constantly finding new reflective and refractive sheet materials so please see the website for the latest offerings – e.g., traffic film – the material that utilises glass micro-beads for maximum reflectivity.



Lenticular Polypropylene Sheet		
Stock Code	Size (approx.)	Price
PL1 036	230 x 320mm	£1.98
PL1 051	465 x 320mm	£3.73
PL1 050	465 x 645mm	£7.28
PL1 035	1395 x 645mm	£21.03



### Coloured Lenticular Sheet

Pattern	Stock Code	Price
1. Aqua	243-016	£1.43
2. Waves red	243-013	£1.43
3. Bubbles green & white	243-021	£1.43
4. Purple liquid	243-019	£1.43
5. Clear liquid	243-015	£1.43
6. Bubbles red & white	243-020	£1.43
7. Liquid gold	243-018	£1.43
8. Waves purple	243-012	£1.43
9. Liquid yellow & green	243-017	£1.43
10. Waves yellow	243-014	£1.43

**Parchment Offcuts – the classic calligraphy writing surface**  
Stock code 234-022 – £9.00



**Ivory Nuts – an astonishing substitute for ivory that looks and feels just like it!**  
Stock code 234-022 – £9.00

## Natural Materials

A new departure this year is the collection of unusual and sometime exotic natural materials for jewellery and other small work. All the materials have been sourced according to the CITES code on endangered species and most come to us as waste or by-products (including the abalone shell of which there are several types not at risk).

The organic materials include:

**Mopani Wood – a semi fossilised desert root with an incredible grain pattern**

Pattern	Stock Code	Price
Whole section 1Kg	234-011A	£15.00
	234-011A	£5.00



**Abalone Shells – the source of mother of pearl**  
Stock code 234-017 – £3.00

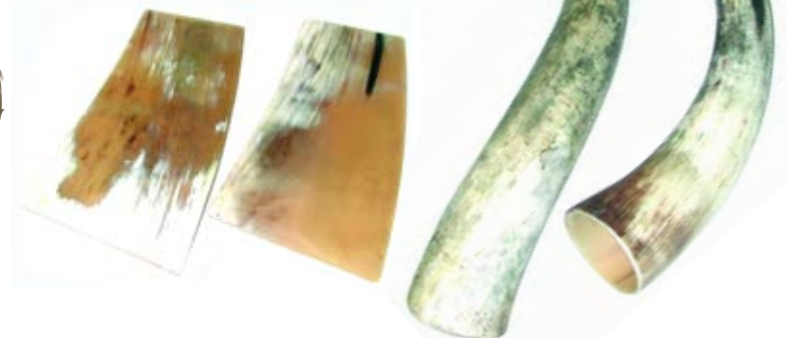
**Capiz (pressed oyster) Shells used for jewellery and small decorative objects**  
Stock code 234-003 – £0.12



**Polished Pen Shells – a tortoise shell substitute**  
Stock code 234-018 – £3.95

**Animal Horn – the real thing rescued from destruction. Can be heat moulded and polished**

Description	Stock Code	Price
Raw horn 10"-15"	233-152	£8.48
Raw horn 16"-20"	233-153	£12.19
Raw horn 21"-25"	233-154	£18.55
Flat horn plates (approx. 8")	233-155	£11.66



The mineral materials include:



**TV Rock (ulexite)** – nature's natural optical fibre. Gives a TV like projection of whatever it is placed over  
Stock code 234-040 – £3.00

**Double-Refracting Rock (Iceland spar)** – bends light to give a double image  
Stock code 234-041 – £3.00



**Glow Stones** – provide flashes of light when rubbed/knocked (triboluminescence) – stock code 212-002 – £1.06

**Sharks Teeth** – an unusual ingredient for jewellery  
Stock code 314-008 – £2.39



**Dinosaur Bones** – really - a must-have material for unusual jewellery – stock code 212-003 – £1.17



**Mica** – natures' glass. An excellent base for enamelling etc. (note: we now have several type of mica in larger and thicker sheets.)

<http://www.mutr.co.uk>

The **NEW Teaching Resources website** has a vast selection of products for all types of projects and classroom experiments. Categorized into different product sections, items can easily be found, or you can perform a simple site search. Secure online ordering and special low prices for schools.

**Toys with a serious purpose**

And, finally, the new TR catalogue abounds with a number of toys having a potentially serious purpose. The growing crocodile is an example of a solid hydrogel – a moulded polymer product that absorbs water and swells to several times its own mass.

Description	Stock Code	Price
Large crocodile	314-013	£4.24
Small crocodile	314-014	£1.86



**Colour-change Duck** – stock code 314-026 – £0.80



Colour-change duck - Mini rubber ducks that change colour in hot water offer an excellent means of demonstrating thermochromic behaviour.

Similarly, stretchy string and pearl swirl illustrate properties that can be incorporated into products to enhance appearance or function. The string is an ultra-elastic polymer (used in safety clothing) and the pearl swirl is a liquid that provides optical separation when stirred (e.g. the pearlescent effect in shampoo).



**Pearl Swirl**  
Stock code 314-012 – £7.42



**Stretchy String** – stock code 314-016 – £5.30



The 2007 TR/TEP catalogue contains some great extracts and ideas for projects from previous News and Views articles as well as a wealth of supporting information on individual items. If you have not received yours please contact:

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