

The future's not orange

Michael Maunder test drives a 'new' colour negative film with a difference

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EVERY SO OFTEN we get a pleasant surprise in the world of photography. Just when most pundits were predicting the (immediate) demise of silver film – and to be honest some useful films and papers do seem to have bitten the dust – a new kid arrives on the block. Not a new slide film, not a new monochrome to replace Tech Pan, not a new colour negative, but an entirely new concept in amateur circles – a colour film to be used as a monochrome.

As we all know, the concept of a colour film as a truly panchromatic medium is not new and I thought it had all been dealt with years ago. Way back in 2000, in *Ag20* (pages 58–63), some of the simpler ways to an acceptable monochrome print from colour film were reviewed and by far the simplest turned out to be a ‘touch of the greens’: use a green Wratten filter and the orange mask drops out and the monochrome image shows through as just that. What today in digital we would call greyscale? The huge snag with that option was a bad ‘touch of the muds’, identified as a lack of contrast or bite. Try a harder paper and the horrible granularity showed up immediately. That remains largely true with the latest generation of colour films.

The alternative of a slide film cross-processed in a negative C-41 chemistry was also popular, but ran into its own snags. Top of the list was a much harsher contrast. Very close behind in unsatisfactory behaviour was a much more obtrusive granularity, as seen with the green

filter dodge above. Some workers liked that grittiness and so the technique is still around.

The major difficulty of the cross-processing option is a strong residual colour cast which after bad working or poor washing could be just as obtrusive as the orange mask you were trying to avoid with straight colour negative stock. With a few cross-processed E-6 films you do end up with a pale colour mask that mimics the antihalation and similar layers in a conventional monochrome film. In those rare cases you simply dial in the correct filters for multigrades and away you go. So what’s so original about this new film?

The new colour negative film has no orange mask. It is processed entirely conventionally in any commercial C-41 chemistry, home or High Street. The negatives look like any familiar monochrome ones except that the image is in complementary colours, and full colour spectrum at that. The world is then your oyster, as all options are wide open. These are:

- Use the film as developed and project as reversed text slides. That can be extremely useful in lectures, as the visual impact of a slide remains much greater than an LCD projector;
- Print as a normal colour print. High Street processing seems to cope with this well;
- Print as monochrome. In this case the true spectral range can lead to very interesting results, as even the best conventional monochrome doesn’t hold up as well, Tech Pan

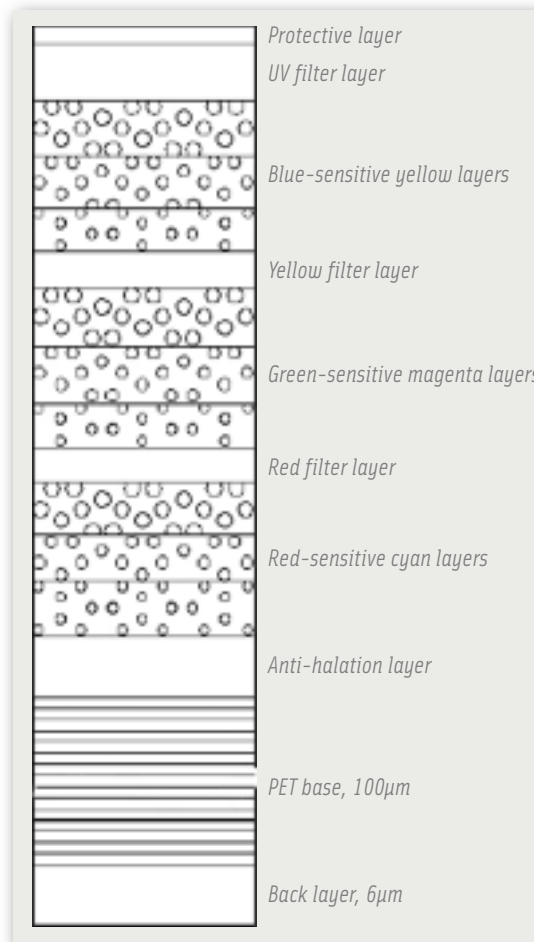
and other pseudo-IR films excepted. Most photographers don't like the portraiture results, but I suspect that is because the effects haven't been seen before except with Tech Pan types.

- Scan. Here we are into entirely new territory as the film is said to be designed for the job. How true is that? Utterly untrue, in fact. In no way is this a film designed for the job. What we have here is a film that has been around for a very long time as an aerial surveillance workhorse, and extremely successful in that. The lack of an orange mask is due to a practical problem in a war environment: getting results yesterday. A conventional colour negative is next to impossible to assess rapidly by eye, before going to the time and expense of printing. Interesting items tend always to be in shadow and/or camouflage and, as described in *Ag20*, even the green filter doesn't reveal that in colour. So it's no better than straight monochrome. So, the citrus mask has been left out.

The 'new' film is Rollei Scanfilm, more prosaically known as CN 400 PRO. Its origins are in Agfa where the true nature is revealed in the nomenclature 'Aviphot Colour X400 PE1'. It's described as a "panchromatic negative maskless colour film with high colour saturation, designed for aerial photography from low to medium altitudes." The film works as well as it does through the combination of high colour saturation with low contrast, factors that allow an enormous tonal range. Because the film is a cut-down version of a standard military size at 9in or more, it has been made available in 120 format. Medium format users will welcome this new film for that versatility. A sheet film doesn't seem to be available.

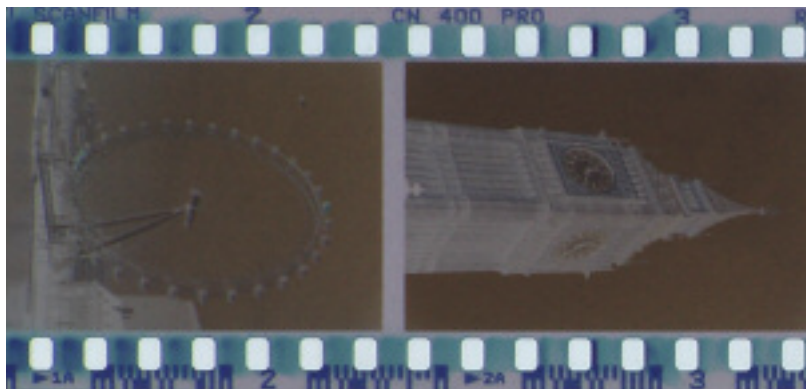
35mm cassettes come in two lengths: the 12-exposure version will be welcome for those wanting to experiment, or to complete an assignment with minimal waste. There are also

36-exposure reels. At ISO400 it has a useful turn of speed and a granularity that is in line with expectations. Some people say that the granularity is worse than monochrome, but that



The multi-layer structure of Agfa's Aviphot Colour X400 PE1, aka Rollei Scanfilm or CN 400 PRO.

is to be expected due to the different way the two options are constructed. Colour film, by its nature, has to be multi-layered, whereas monochrome can be a single layer. Although most of the latter are not single layer these days,



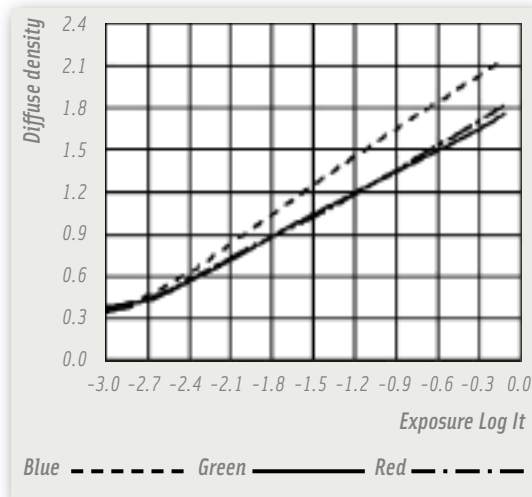
Above: 'Light piping' is evident on these negatives. Note, this goes to whole length in the rebates.

Above right: the colour density curves of Rollei Scanfilm, as published by Agfa.

they still have far fewer layers than colour films.

Each of the three colour-sensitive layers is split in turn into three distinct layers, each of which has a differing sensitivity and granularity. These follow modern practice with a top layer of maximum sensitivity (highest granularity), below which are medium and slow sensitivity layers. (See page 85.) This reduces the granularity of the image compared to older films, where all the sensitivity range grains were mixed together in a thick emulsion. That made it extremely difficult to focus the image at a fixed point or layer and some image properties suffered as a result.

By combining three thinner layers we end up with an effect pioneered by astronomers in the multiple image or stacking of the same picture. The 'fuzzier' grainy image of the more sensitive top layer contributes density to the overall colour, whereas the lower layer is the sharp image. In digital that has been widely adopted in the now familiar Unsharp Masking of superimposing multiple images. As I have commented before, that is not a digital invention at all, but an astronomical technique more than a century old. With the normal protective and filter layers, this film has no fewer than 14 layers on a 100µm PET base (the same material as food and drink bottles). The backing is another protective layer making a total 137µm thick film stock. This is very similar to other colour films. As we will see from the results, the colour



rendition is extremely good. But that is to be expected from a film of military origin.

The characteristic curve also follows a modern specification, which has a very shallow slope, with virtually no 'toe'. That ensures an excellent response in shadow detail, with little tendency to burn out with gross over-exposure; this is precisely right for military purposes when lighting conditions are totally unpredictable. The good granularity and colour saturation then come into play when the film is scanned, or printed conventionally.

The proof of the pudding is always in the eating and my experience was one of a pleasant surprise, coupled with a couple of nasty ones. For testing I employed my trusty Canon T70, fitted with a standard 50mm lens. Auto-exposure in wide-angle mode ensured best depth of focus. Because this film is claimed to be a scan film, I also took some test shots of the same scene and lighting with a digital camera, but not a normal one most photographers would employ for this type of work. I always use a Panasonic GS400 video camera as that has 3 CCDs for optimum colour rendition. That also takes a SD card and is capable of 4-megapixel resolution in still mode. The only difference from a photographer's standard digital camera that many will use is in

the way the data are stored: JPG for rapidity to keep pace with video; RAW is not an option. However, at 1.5MB, printing A4-sized prints is fine for most subjects, certainly in a test such as this. For the first test I loaded a 12-exposure cassette, and shot away at my test subjects after some record shots of familiar scenes. That led to a surprise, in that the 12 exposures seemed to go on and I became concerned that I had loaded 36 by mistake. The film finally ran out showing 17, but when processed only 14 were there. A paradox I have not been able to explain. Either way, the film is generous in measure.

Processing: This provided the first nasty surprise. As this is a film for general use, High Street processing is the first option. My local Boots refused to process. I have to agree with them because there are a lot of rogue films about that can destroy a company's reputation when nasty 'bits' get into their carefully controlled chemistry. The snag arose from the incredibly basic labelling on the film cassette. It had little more than the name on it, with no mention at all of the type of film and/or processing needed. I was happy to leave this as a major snag, then remembered that I had seen C-41 somewhere. The plastic film container also had the same basic data printed on it, but also with a separate sticker showing "C-41". Fortunately I had taken both into the shop and the assistant agreed to keep both to show to the manager next day.

Boots did an excellent job with a film they had never seen before and the negatives were clean and process-blemish free. Then to the bad news. Rumours I had heard of the film suffering from 'light piping' turned out to be an understatement. With my background in astronomy and familiarity with ultra-high speed films, camera loading is always taken seriously. Only with infrared and similar films have I ever experienced the occasional problem. With this



film, several early exposures were ruined and light piping was evident down the rebate for about half the film. Fortunately my test exposures were taken towards the end of the film and survived to render a valid comparison with the digital/video exposures. What did concern me was the loss of several serious scientific record shots of a solar pillar. Seeing these rare events is always worthwhile since it can predict weather patterns to come. This one did and the anticipated bad weather ensued. Having said

The effect of light piping on scenic shots. The reddening has ruined a scientific record of a solar pillar.

Top: The test shots after High Street processing to glossy en-prints.



Middle: Very good results scanning as a monochrome negative, but in scanner's colour mode.



Bottom: At last, scanned as a true monochrome negative, in greyscale mode.



that, the colour rendition over the huge lighting intensity range and colours is impressive. Many films do not cope that well. From my own inspection the results are first-rate. A much wider variation from the real colouration is often seen between processing houses. It seems that a modern High Street piece of kit will turn out a

good print regardless of the film type. Transferring these test results to a final printed page as you see them now will introduce as much colour variation as between any other film stock comparison. The film passes that test, with 'flying colours' to coin a phrase.

Rumours suggest that the film is unusually grainy. These test results suggest that is not the case and what we might be experiencing is a simple case of unfamiliarity with the medium being used as a monochrome negative. Multigrade papers and printers may simply not be adjusted properly. Try a softer grade of paper with a more 'gutsy' developer (dare I suggest using it fresh?). Try a 1+8 dilution for instance, instead of 1+9/10, before rejecting the grain as bad. Or work at 22°C instead of 20°C.

As this film is being promoted for mono work, it seems logical to see how far that concept could be taken. The instructions can be downloaded from Silverprint's website www.silverprint.co.uk. I scanned the negatives on an Epson 4990 as though a normal film. Once the parameters have been set for a monochrome negative, all seems fine. The scanner does all the work and that ensures consistency for a test comparison. Good greyscale and an image that is extremely easy to manipulate in any editing programme.

Conclusions: As long as you load the film in the correct way and don't try to do it in full sunlight, this film should end up as a very interesting and useful new tool in the photographer's armoury. What I particularly like is the versatility referred to above. Once the film is processed you have every option open to you including the important one of permanence. Quite unlike a digital image, there can be no doubt what the original is and what it looks like. Now, and a century or more in the future.

Michael Maunder