Working with Technical Inks

since Esko Software Suite 12

ESKO✲

Contents

# 1. What are Technical Inks and What are They Used For?

It is common practice in the packaging industry to add additional contour data in a PDF that will not be used for printing the final product.

These contours are used for different purposes:

- CAD or structural data e.g. cut lines, crease lines,etc...

- Dimension lines

- Braille

- Etc...

In Esko applications such contours are stroked with a spot color. The name of the spot color identifies what the contour represents. The type of the spot color is set to "Technical".
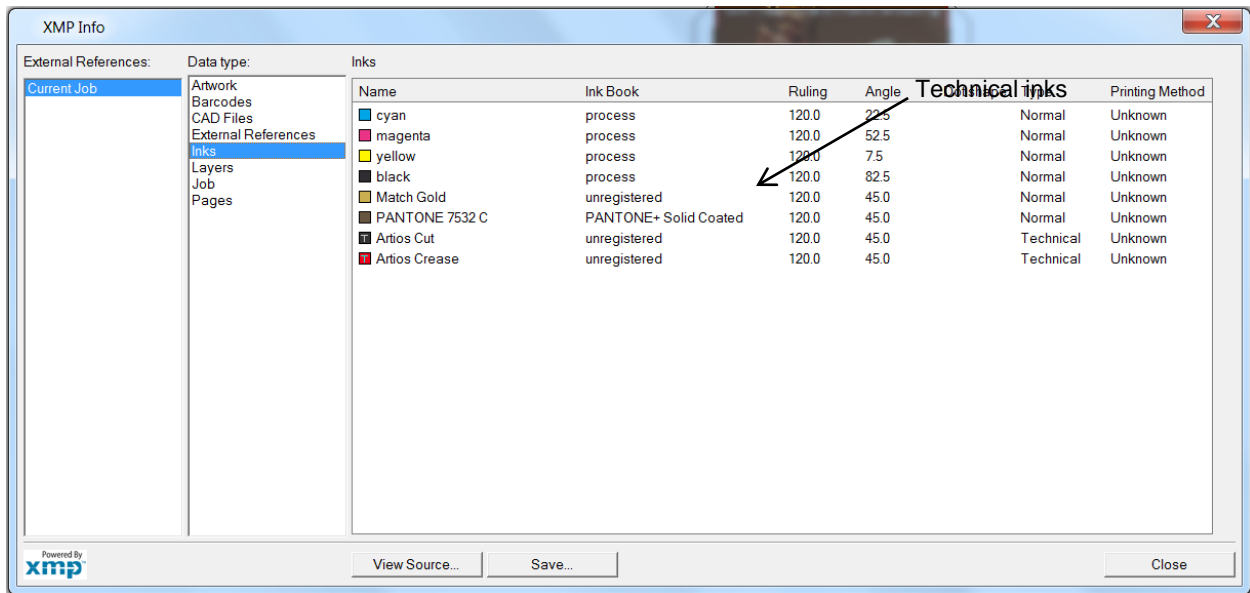

Esko Normalized PDF files contain XMP metadata. In the XMP the list of inks can be found with an indication of their type: "Normal" for inks used for printing the final product, "Technical" for spot inks representing other things like CAD data.

In several parts of the workflow technical inks are treated differently than normal printing inks:

- PowerTrapper will not trap technical inks

- The FlexRip can omit technical inks when making plates, while FlexProof can include technical inks while making proofs.

- Visualization of technical inks can be switched off or on in some editors with a single click

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2. Recommended Way to use Technical Inks

The recommended way to work with technical inks is as follow:

Object in technical inks in top layers

Objects in technical inks stored in a top layer
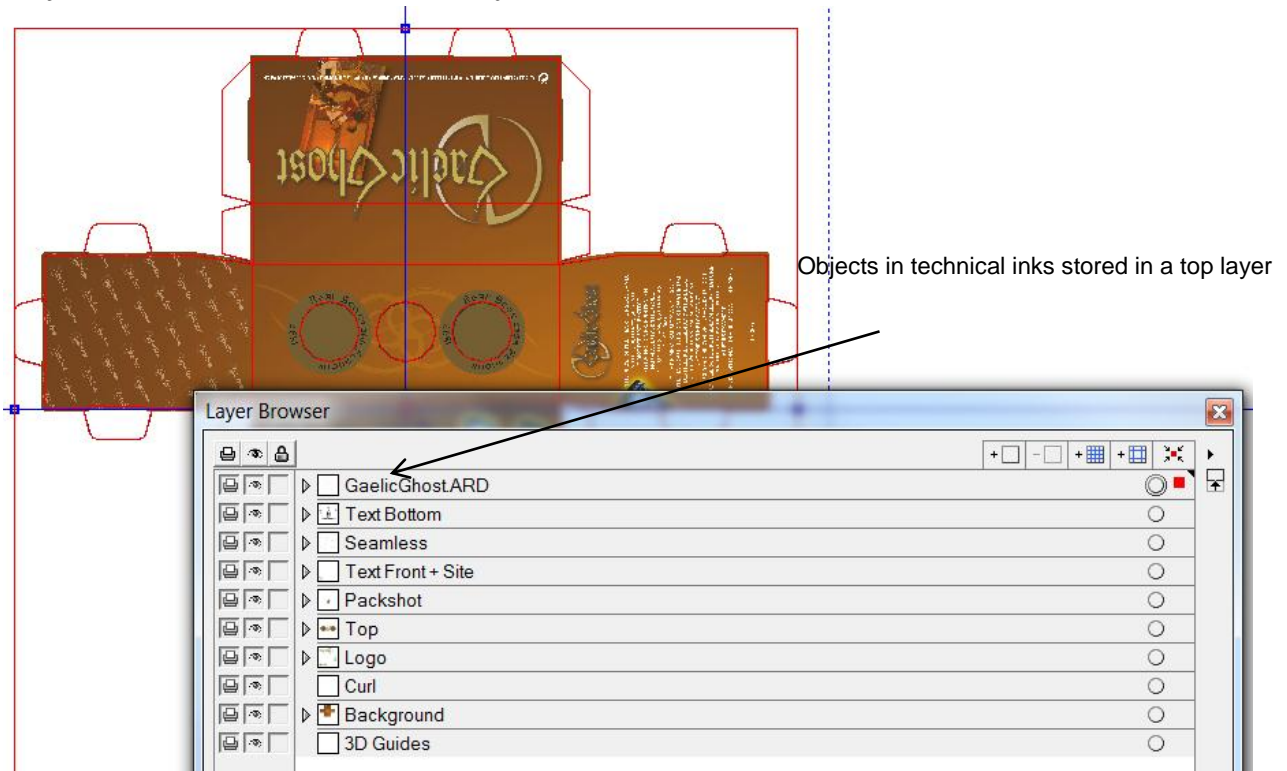
Objects colored with technical inks are stored in 1 or more layers at the top of the render stack. The advantage of this is that, when you use a PDF generated this way in an application capable of handling layers (PDF Optional Content Groups), you will also be able to view and print the job correctly with or without objects in technical inks by switching on or off the corresponding layers.

Warning! This only works as intended when the objects in technical inks do not influence the normal printing separations of the job. See below.

Objects in technical inks do not influence printing separations

Objects stroked with technical ink in blend mode Normal and Overprint
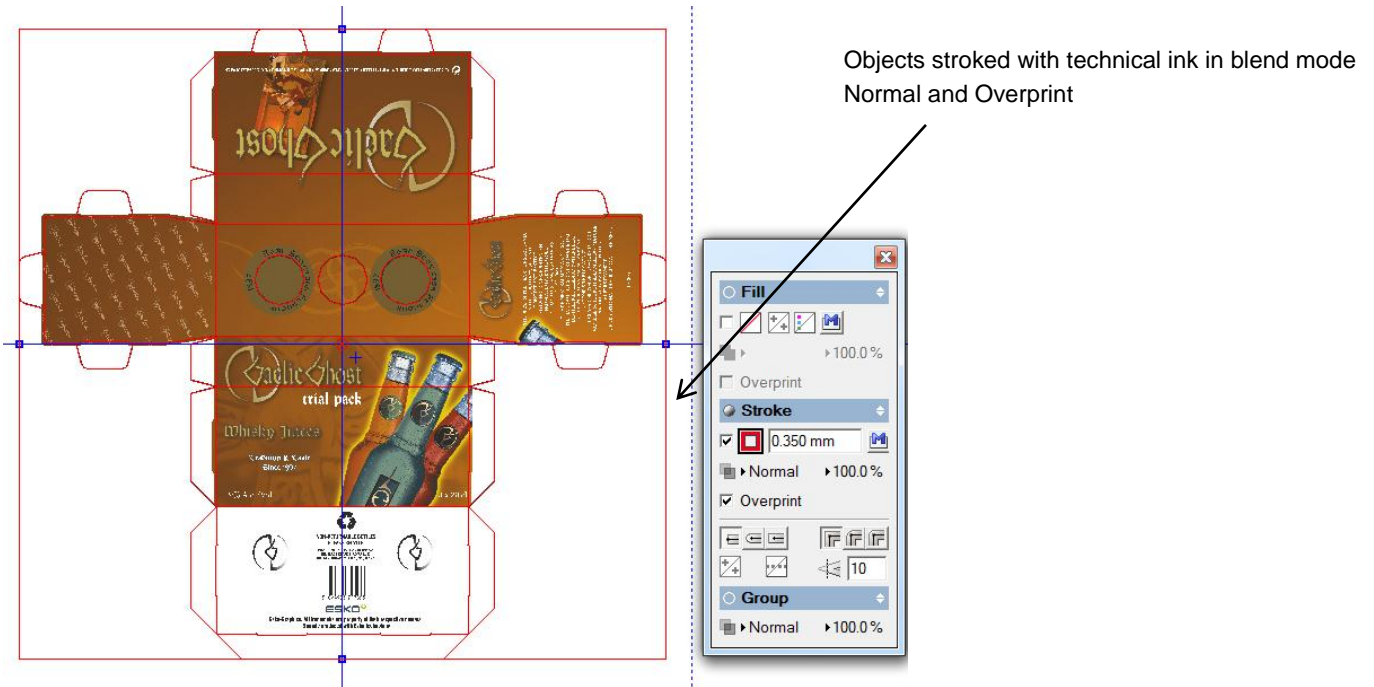
It is best to avoid that objects in technical inks influence printing separations e.g knocking them out. Therefore it is best to stroke or fill objects with a spot color in blend mode Normal and switch on Overprint. Do not use technical inks in opacity masks. Do not put objects with printing inks on top of objects with technical inks in blend modes Hue, Saturation, Color, and Luminosity. Etc…

Avoid using technical inks and normal printing inks in the same object.

Some checking tools like "Optimize and Clean (PSFIX)" in Automation Engine can check for interaction between objects in technical inks and printing separations. The auto correction feature will switch on Overprint if the object was put in knock-out. Since Overprint is an attribute of the object and not of an individual separation of an object, this will result in unintended changes of the printing separations.

Use a solid tint

It is recommended to color an object with 100% of a technical ink. Avoid using tints or shadings etc…

3. What Changed since Suite 12 Assembly 3?

For historical reasons there were some differences in the way applications in the Esko Software Suite handle technical inks.

Inconsistent behavior caused confusion and in some cases even errors in print.

Since the 12.1 release of our products we have made the behavior of all products consistent and predictable.

4. Working with Technical inks in PackEdge

Older versions

Older versions of PackEdge limit the use of technical inks in objects, forcing the operator to build files that comply with the recommendations above. It is not possible to:

- Create objects that contain both technical and non-technical inks (including images and vignettes)

- Create objects with technical inks in blend modes other than Normal

- Use technical inks in opacity-masks

- Use technical inks in 0% (normal or overprint) to knock-out other technical inks

These older versions of PackEdge also rendered objects in technical inks in a special way to enhance their visibility (objects rendered on top of other objects as an opaque ink).

In ArtPro and DeskPack there are no limitations on the use of technical inks. In these applications it is the responsibility of the operator to generate the Normalized PDF in a correct way. Not all jobs generated by ArtPro or DeskPack comply with the PackEdge limitations. When opening a Normalized PDF with a non-compliant technical ink construction older versions of PackEdge assume that this is an operator error and try to correct the situation. Since PackEdge 12.0 A1, a message "WARNING: WARNING-AUTOMATICALLY CORRECTED KNOCK-OUT TECHNICAL INK" is shown when the operator opens a file with technical inks infringements.

There are 2 problems with this approach:

- The non-compliant technical ink construction used in the ArtPro or DeskPack Normalized PDF was sometimes intended and not an operator error.

- The correction built into PackEdge was only capable of correcting the simplest cases. More complex situations were not dealt with in a correct way.

What was changed since PackEdge 12.1 and why?

To guarantee Normalized PDFs from ArtPro or DeskPack can be handled correctly and as intended by the ArtPro or DeskPack operator, all limitations on the use of technical inks have been removed from PackEdge.

Since v 12.1, PackEdge renders objects in technical inks as opaque inks but will no longer change the render sequence.

To prevent the operator to make unwanted mistakes, PackEdge will give a warning when opening a file that contains objects in technical ink that are not in Overprint. The operator gets the choice to change set these objects to overprint or keep the design as it is.

The same warning and options show up when saving a file that contains objects with technical inks in knock-out.

5. Working with Technical Inks in ArtPro

In ArtPro the user has always been free to use technical inks in combination with any other inks, in knockout or in overprint, in any blend mode. This has not been changed.

What has changed since ArtPro 12.1?

Warnings to prevent the operator from making unwanted mistakes will be displayed in the Message Center when opening and saving the ArtPro file, as well as when exporting to any flavor of PDF and importing any flavor of PDF, in the following cases:

- "The document contains at least one object with a technical separation in knockout" . ArtPro will give this warning in case an object is painted in a technical ink (pure, or mixed with non-technical inks), and any of the other document separations are set to knockout (0%) instead of overprint (trans). Only a warning is given, no auto-correction is done.

- "The document contains at least one object with a technical separation that has a non-separable blend mode" in case an object is painted in a technical ink (pure, or mixed with non-technical inks) and the blend mode is a so-called non-separable blend mode, i.e. Hue, Saturation or Luminosity. Only a warning is given, no auto-correction is done.

- "The document contains at least one process separation marked technical, which will be reset in the PDF." This warning will pop up when exporting to (any flavor of) PDF and one of the process separations was marked Technical in the Separations list (which cannot be done in PackEdge or DeskPack). As leaving a process color in Technical would result in an invalid PDF, this is the only case where an auto-correction is done. The process color will be reset to process (Cyan, Magenta, Yellow or Black).

Rendering: Just like in the other Esko editors (12.1 and later), ArtPro 12.1 will now visualize objects in technical inks as opaque, both in ArtPro and in Viewer Compare.

Technical inks in print production related tasks and reports: As technical inks are typically not printed, prepress tools in ArtPro that help to detect potential printing problems   have   also   been   adjusted.

- Viewer: Technical inks are still listed there (no special indication as in PackEdge and DeskPack yet) and individual measurements are shown, but they are not taken into account in the total ink coverage, breakouts, minimum dot, moiré detection etc.

- Ink Coverage Report: Following the same logic, technical inks are excluded from the Ink Coverage Report.

- Rich Black and White Underprint: Technical inks can no longer be used as Rich Black or White Underprint ink.

- PowerTrapper: Objects in a technical ink (pure, or mixed with non-technical inks) are not trapped.

6. Working with Technical Inks in DeskPack

Older versions

Technical inks were in general ignored throughout DeskPack (except in Structural Design). It means, for example in the Viewer, that technical inks were not listed in the separation list and the display of other separations was not knocked-out if the object using technical inks was not set in overprint.

What was changed since DeskPack 12.1?

Most checks and limitations related to technical inks were removed. The following list sums up changes in DeskPack plug-ins:

- **PDF Export** generates a **warning** in the Message Center after exporting to Normalized PDF file if the artwork contains any object using technical ink **not in overprint** (what will cause a knock-out of underlying objects). The same warning is generated when importing a Normalized PDF using the **PDF import** plug-in.

- The **Viewer** plug-in now shows technical inks but allows toggling visibility of technical inks by the separate option in its fly-out menu. In fact toggling visibility by this option is the same as toggling visibility by the "eye" beside the ink, with an advantage of doing it for all technical inks at once. Even if the visibility of technical inks is off, it still has an influence on the rest of objects (knocks-out etc.).
  The **Eyedropper** shows the density of technical ink, but technical inks are ignored while calculating the total sum of densities. **TAC** calculations ignore technical inks and the same for **Moire detection**.

- **Ink Coverage** calculations: both on-screen and in the XML report, technical inks are ignored.

- **Screening, Channel Mapping** and **BoostX/InkMix** plug-ins can now work with technical inks.

- **PowerTrapper** doesn't take into account technical inks while making trap decisions and does not use technical inks in trap objects. The same approach is also applied for objects filled with a mix of technical and non-technical inks.

- **Dynamic Marks** has a new control to include technical inks in color attributes

7. Working with Technical Inks in Automation Engine

Older versions

In older versions of Automation Engine, 'BRIX' based tasks (Trapping, PSFIX, etc..) contained the same correction mechanism as described in the PackEdge paragraph above. When a file with a non-PackEdge compliant technical ink construction was processed by such a task auto correction was applied and the message "WARNING: WARNING-AUTOMATICALLY CORRECTED KNOCK-OUT TECHNICAL INK" could be found in the Details pane of the task.

Like pointed out in the PackEdge paragraph, there are several problems with this approach:

- The non-compliant technical ink construction used in the ArtPro or DeskPack Normalized PDF was sometimes intended and not an operator error.

- The correction built into PackEdge was only capable of correcting the simplest cases. More complex situations were not dealt with in a correct way.

For automated workflows there is an extra problem: when building workflows that route PDFs through different paths (e.g. trapping PDFs for customer A and not trapping PDFs from customer B), files could get "corrected" or not depending on the fact if there was a BRIX based task in this workflow path or not. This made the whole approach somewhat unpredictable.

What was changed since Automation Engine 12.1 and why?

Similar to PackEdge BRIX based tasks in Automation Engine will (since 12.1) no longer modify files that have non-compliant technical ink constructions. The file will be processed "as is". The AE Viewer will show the file "as is" and like the FlexRip will RIP the file. So the system is consistent and predictable.

A new "Check Technical Inks" task was introduced in Automation Engine 12.1. This task will not modify the Normalized PDF or PDFPLA file. The task will end in

the Warning or Error state when the Normalized PDF or PDFPLA or any of its external references contains objects in technical inks in knock-out.

- This task can be inserted at an entry point of workflows to check incoming files. The workflow can stop in the Error state when a file with technical inks in knock-out is detected. An alternative is to let the task end in Warning state and route the file to manual inspection with a "Wait for Action" task.

- The task can also be inserted just before RIPing of generating final output.

Customers that still want to auto correct incoming Normalized PDFs from DeskPack or ArtPro in a similar way as in previous releases of Automation Engine can insert an "Optimize and Clean (PSFIX)" task in the workflow. Enable the option "Put knocked-out technical ink object in overprint" in the task ticket. The PSFIX task will put objects with a technical ink in blend mode "Normal" and Overprint.
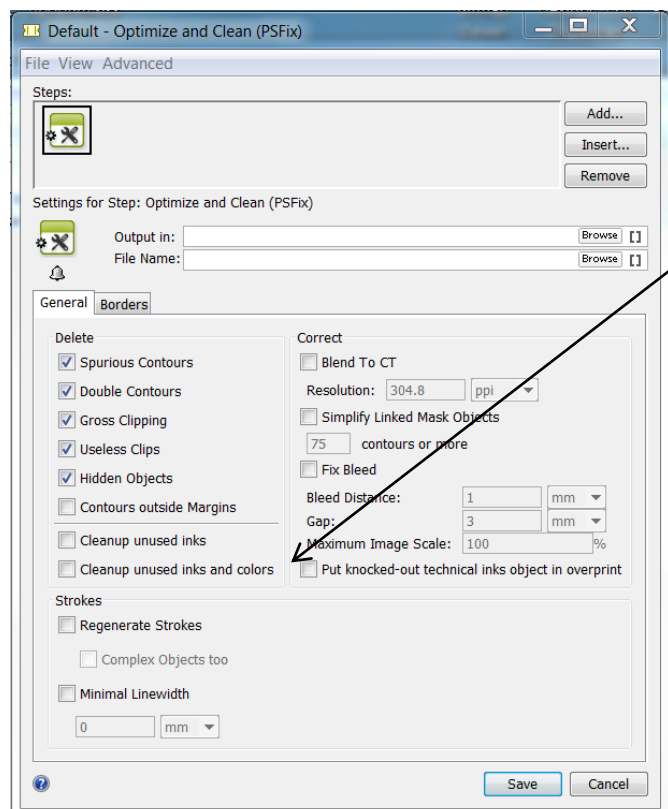
Warning! This will only lead to correct results in case the operator forgot to set the Overprint flag in his application. In more complex cases the correction may lead to unexpected results, so check files before sending them to print.

Note also that the PSFIX task does not handle PDFPLA (Plato Step and Repeat) files. Also PSFIX will only check the Normalized file itself, it will not check and correct external referenced PDFs.