

RECP Best Practices Catalogue

Reduced consumption of inks and solvents

Developed within the framework of MED TEST II



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



switchmed



The SwitchMed Programme is
funded by the European Union

Best Practice - Reduced consumption of inks and solvents

SECTOR:	Paper, printing and plastic products
SUBSECTOR:	Printing and service activities related to printing
PRODUCTS	Plastic films (90%), packeting (10%)
CATEGORY	Process control or modification
APPLICABILITY	Process
COMPANY SIZE	Between 75 and 100



The SwitchMed Programme is
funded by the European Union

Best Practice - Reduced consumption of inks and solvents

Description of the Problem (Base Scenario):

Ink, the main consumable in a printing shop, is an expensive material (€ 7 per kg). The current equipment requires approximately 12 kg of ink per station and per colour, between the feed tray, the flow circuit, and the ink trough. The loss at the end of production after emptying the feed tray is about 500 g per colour. The cleaning of the printing machines also consumes large quantities of solvents, as well as pollution, generated by the disposal of about 300 g of ink (20 kg/month) which are disposed of with the discharges from the factory.

Description of the Solution

The recommendation's objective is to reduce the amount of ink used with a reduction of the containers and units of the flow circuit. It is a matter of:

- Reduction of the feed tray size (see note) while retaining the ability of measuring viscosity. Providing for closure to avoid evaporation.
- Reduction of the volume of the feed tubes (reducing diameter and length).
- Reduction of dead volume in the ink trough below the doctor blade chamber.

NB. For running productions using the same ink reference, the feed tray can be considered to be a storage bin between 2 productions. This will avoid solvent cleaning costs. The trays are versatile on all inking stations.

Best Practice - Reduced consumption of inks and solvents

Economic Gain

The estimated gains on the inks is, at 250 g per colour x 5 colours x 2 prod x 30 x 12 = 900 kg x € 7 = €6,300/year potential per machine

This is in addition to savings on solvents (Each cleaning of a colour requires 1.5 L of solvent).

By installing a wash bottle and cleaning trays, and an estimated 20% reduction in evaporation at least, the solvent gains are: 1.5 L x 20% x 5 x 2 x 30 x 12 = 1 080 L at € 1.89/kg or € 2,041/year for 1 machine.

Or a gain of € 8,360/year per machine

Thus, for the 5 machines, one can estimate the gains, by applying a global use factor of the machines of 80%, of € 33,440/year

Environmental Gain

The environmental benefit would be: the reduction of VOC emissions following the evaporation of solvents.

- Ink savings: 900 kg/year x number of machines x 80% = 3,600 kg/year
- Solvent savings: 1,080 litres/year x number of machines x 80% = 4,320 litres/year
- Reduction of pollution from liquid cleaning disposals containing solvents and inks

Health and Safety Impact

Reduced evaporation of solvents are beneficial for the staff and for the safety of the premises. The reduction of consumption of both dilution and cleaning solvents have a positive impact on the health of personnel



The SwitchMed Programme is
funded by the European Union

TEST Training kit

Best Practice - Reduced consumption of inks and solvents

Investment and Financial Indicators	Low cost of modifications (Can be charged to the maintenance budget) (Time for Return on Investment: Quick)
Suppliers	Internal engineering team
Other aspects	None; staff awareness of ink and solvent savings
Implementation and new indicator	Planned in 2018