MICROFILM IS FOREVER

KEEPING INFORMATION FRESH IN ALUMINUM POUCHES

by GERRY TOOMEY

What do microfilm and cabbage rolls have i" common other rha" the fact they both come i" rolls?

The answer is that they both both store well i" aluminum foil pouches So well, i" fact, that the pouches are being used by Canadian and Indonesian documentation specialists to store archiva1 microfilm-that is, microfilm documents that are supposed to last 'forever'.

The technology of packaging food i" hermetically sealed aluminum foil has been around for many years. It has been "sed for products ranging from army rations, which have fo store well under the toughest conditions, to more conventional consumer foods such as smoked meat and cooked cabbage rolls.

In 1975 the Swedish Archives reponed on experiments they had conducted in which such aluminum pouches were successfully used ro protect photographic film. The Bank of Ganada, which i" 1977 faced the prospect of an expensive upgrading of its microfilm storage facilities, saw the report and was impressed. It conducted its own experiments.

It has "ow been 10 years since the Bank began using the pouches to store archiva1 microfilm documents pertaining to Canada's debt-management program. Their successful experience with the pouches prompted IDRC to investigate the potential of the technology for microform storage in developing countries. And two other Canadia" institutions—Canada's Public Archives and the Metropolitan Life Insurance Companies—have also begu" to use the system.

Microfilm is an excellent medium for storing important documents over a long period, perhaps as long as several centuries. Pages of information can be miniaturized and photographic film that has undergone proper chemical treatment is highly stable. In the hot and humid tropics, however, microfilm is especially at risk from its two arch enemies—mold and fungus.

To avoid the image deterioration caused by high heat and humidity, climate-controlled rooms are normally used for microfilm storage. For documentation centres in developing countries, this is not only a big expense, but sometimes a futile one. Frequent power failures and the practice of turning aff the air conditioning at night to save money, for example, can result in the microfilm deteriorating faster than if it were stored i" a room with no climate control at all.

With an aluminum pouch storage system, the expense of a climate-control system and its perpetual upkeep are replaced with the much smaller expenses of a desk-top vacuum-seal packaging machine (about CA$12 200), nitrogen tanks and other accessories ($3000), and a supply of pouches (35 cents each). About 100 microfiche-with a capacity of 10 000 pages of text—can be stored in one 175 by 230 millimetre pouch.

Although the pouch system requires a piece of microfilm to be repackaged after every viewing, this is not a serious problem i" the case of archiva1 microfilm. Archiva1 documents are considered master copies and there is rarely a need to take them out of storage. "When your working copy of the microfilm wears out, you simply go back to your archives, open the pouch, and make a new working copy," explains Ronald Archer, a program officer in IDRC's Information Sciences Division.

The IDRC-financed experiment at the Indonesian Center for Scientific Documentation and Information (PDII), in Jakarta, began i" Ocrober 1985. Donald Wilson, the Bank of Canada's records manager, and his colleague Diane Dumoulin, the Bank's microfilm supervisor, went to PDII to install and demonstrate the system and to train micrographics staff to operate and maintain it. Pouches were packed and vacuum-sealed by PDII staff.

During packaging of the pouches, a vacuum pump draws out all air. This includes atmospheric oxygen, the element that enables fungus and mold to grow and which is necessary for the chemical oxidation that blemishes photographic images. As the air is evacuated, the pouch is "back-flushed" with nitrogen which, being an inert gas, does not react chemically with the micofilm. The nitrogen keeps the contents of the bag perfectly dry. By giving form to the bag, it also acts as a cushion to protect the microfilm.

To test the quality of the packaging under Indonesian conditions, severa1 of the pouches prepared at PDII were intentionally stored under severe conditions, including a generator room with a high concentration of reactive chemical fumes. One pouch was even buried in a plant pot in the office of Ms Luwarsih Pringgoadisurjo, the head of PDII. She promised to water it faithfully every day along with the plant "in order to give it a good test"!

Six of these pouches also contained a spoonful of blue silica gel crystals to test for moisture due to improper sealing. The highly sensitive crystals turn pinkish brown if exposed to even minute amounts of water. Whe" the pouches were opened after 15 months, the crystals were still blue. "The system was still running exactly the way it was supposed to," says Mr Wilson, referring not only to the quality of the pouches but also to the vacuum-sealing operations.

Photo: Denis Sing / IDRC

Aluminum pouches protect film from the effects of heat and humidity.

It was Ronald Archer's idea to test the feasibility of using the Bank of Canada pouch system in Third World documentation centres. "It's an absolutely perfect solution toa storage problem that had been expressed to IDRC many times:' he says. "And now the Indonesians have come back to us with a request to produce a training video on this system.'

Meanwhile PDII staff are proceeding with the pouching of archival material, and three other groups—in Sri Lanka, Fiji, and Trinidad—have expressed an interest in the technology.

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