Figure 26.21 Countlines, twist to reclose.

Figure 26.22 Reclose using self-adhesive label.

26.7 Quality control and environmental criteria

26.7.1 Quality control

When it comes to food safety, "Declarations of Compliance" should be provided by the supplier of packaging materials intended for direct food contact confirming good manufacturing practice (GMP) have been adhered to. For example, the GMP part of European regulation 2023/2006 sets out the requirement for all suppliers to provide clear declarations of the suitability of their product for direct food contact.

The integration of high-speed production lines would not be possible without full electronic control of what is basically a series of mechanical operations. It

also depends heavily on the quality of the packaging materials, and here such factors as print and sealant registration, particularly where the photoelectric cell (PEC) register mark is concerned, stretch, slip and accuracy of slitting must be controlled to a much higher degree than before and monitored by the end user. This control of quality can involve a multiplicity of tests to be carried out before materials reach the production line. If agreement on standards can be reached with suppliers, it should be possible for the supplier to carry out the bulk of the testing, with only spot checks being carried out by the user. Nevertheless, a well-equipped packaging laboratory should be capable of carrying out at least the following tests:

- Seal strength, tensile strength, burst strength;
- Coefficient of friction;
- Moisture vapour resistance;
- Detection of residual solvents, for example by gas liquid chromatography;
- Taint, using a panel of tasters (see Section 23.12.4);
- Print stability and resistance to abrasion;
- Scannability of bar codes.

Chocolate is particularly sensitive to external taint and it is essential that every precaution be taken to exclude it. Most modern flexible materials are fairly good barriers to taint and can be made very good by coating with PVdC or acrylic, laminating or metallising. The quality of seal is important: where the package is not sealed, external taint sources must be eliminated.

Although the manufacturer has little control over the environment after the product has left the factory, there are many potential sources of taint during manufacturing operations. These include residual solvents, or other likely contaminants in wrapping materials, resulting from incomplete drying or oxidation of printing inks and varnishes, including sealants. Print can "offset" onto the inside of a reel, or indeed any printed materials and come into direct contact with chocolate. Incorrectly applied coatings or laminates, such as PE, can also be the cause of taint.

In addition to its role in protecting its contents from the hazards of climate and distribution, packaging is also instrumental in persuading the consumer to buy. It is therefore well worth taking pains to get it right.

26.7.2 Environmental issues

All packaging must now take into account environmental criteria. Fundamentally, this means using the minimum amount of material consistent with the requirements of the product, but in some markets there are prejudices against specific materials, which must also be taken into account. Such materials include PVC (primarily because it is perceived as contributing towards acid rain and releasing dioxin when burned) and aluminium because of environmental damage allegedly caused during its manufacture and the original extraction of bauxite.

Although there are few legal restrictions on the use of such materials, consumer objections expressed through the retail trade may necessitate the use of