

# Chocolate Manufacture

## Introduction

The world wide demand for chocolate confectionery is increasing, with the EU being the world's largest confectionery producer. Estimated total EU consumption of all chocolate confectionery was in excess of 2m tonnes with a retail value of €19bn (£15bn). In Ireland we produce more than 35,000 tonnes of chocolate products annually which is an increase of almost 20% over the last decade. Ireland lies 5<sup>th</sup> behind the Swiss in the consumption of chocolate spending nearly 60 ECUs per capita.

## Manufacturing Method

Plain chocolate requires only cocoa mass, cocoa butter and sugar. To these ingredients milk powder is added to produce milk chocolate. White chocolate is made with just cocoa butter, sugar and milk powder. These are mixed to a smooth dough. To make the chocolate as smooth and as granular free as possible it is finely rolled. The next step is conching where the chocolate mass is kneaded in combination with heat to give the final aroma. The chocolate is then tempered and poured into moulds to attain its final shape.

For most small producers of chocolate, it is far too expensive and time consuming to actually manufacture the chocolate themselves. In Ireland almost all chocolate is purchased in block form and it merely has to be tempered prior to moulding. This involves using a melting kettle, which can be digitally controlled to give the desired melting characteristics and temperature range.

- When working with chocolate it is best done at ambient temperatures of 20-22°C.
- Chocolate should not be processed in high humidity conditions. Under 50% is best.
- Never let water come in contact with chocolate.
- Store in a cool dry and odourless environment.
- Chocolate should not be stored in a refrigerator or freezer because condensation will form when removed.



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*This is one of a series of fact sheets on potential income generating activities.*

*All fact sheets are available in the Advisory Section of the Teagasc Website*  
<http://www.teagasc.ie/>

**Edited by:**  
**John Whiskey**  
**Paul Mc Carthy**  
Teagasc  
Mellows Development  
Centre  
Athenry, Co. Galway.  
+353 (0) 91 845200

Teagasc Fact Sheets present a brief overview of a topic. Further detailed advice should always be sought from relevant sources

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## Packaging

Packaging presents the product in an attractive and appealing manner and keeps the chocolate in top condition. The ideal package is not merely cosmetic, but gives protection from absorption or loss of moisture, absorption of undesirable odours and protection from contaminants. It should exclude light, which has the effect of accelerating oxidative changes within the fat. The package should have sufficient mechanical strength to withstand the hazards of filling and transport. The packaging material should not be manufactured from a product, which could adversely affect the product within.

## Costings

Like all food manufacturing facilities a suitable premises which conforms to health and safety guidelines is essential.

Equipment is not expensive relative to other enterprises. One requires a melting kettle, digital thermometer, stainless steel work table, assorted steel bowls and moulds(polycarbonate).

The processing and packaging areas should if possible be kept separate with a dehumidifier in constant use.

The packaging is the most expensive side to chocolate manufacture. Costing is difficult because of the range of packaging materials available however a paperboard box to hold 250g of chocolates will cost in the region of €1.25 to €5.0 depending on the specification. Another difficulty with packaging is the minimum order quantity, which from most companies can be 1-10,000 units. This in turn may require considerable storage space.

Cost of Bulk Chocolate	€3-5 /kg
Cost of Equipment	€1-5000
Cost of Packaging	Variable

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