Diploma In Packaging Technology

Coding

Package Coding

- Information determined at time of packaging
- Customisation of information to products
- Provide traceability
- Primary, secondary and tertiary packaging

Coding Information

- Batch codes
- Use by
- Weight, price information
- Ingredients
- Contents (Industrial Packaging)

Coding Methods

- Embossing and debossing
- Thermal labels and thermal transfer
- Lazer coding
- Ink Jet coding
- Machine readable codes

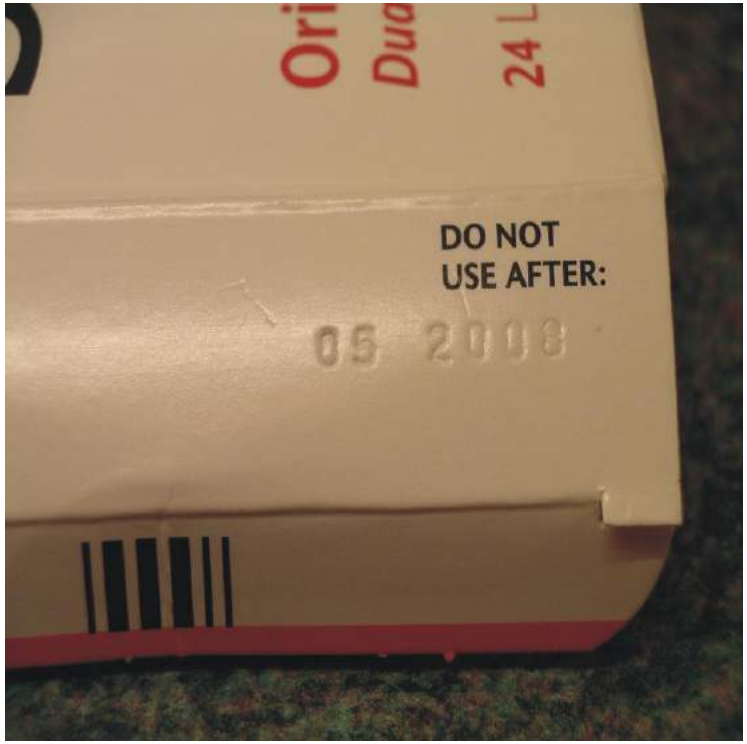
Embossing

- Raised image formed by male and female dies.
- Stretching and deforming material with the aid of heat and pressure

Debossing

- Die pressed into surface to leave depression
  - Can be aided by heat
- Requires surface which is compressible
- Can be difficult to read on some backgrounds

Plastic Polymerisation



Thermal Coding

- Heated printing head
  - Relief printing
  - Electronically heated head
- Contact process
- Large area printing possible
- Applications
  - Labels, films

Direct Thermal Printing

- Heat activated thermal papers
- Uses heated printing head
  - Heat activates dye
- Heating paper causes colour change
- Usually only black available
- Paper discolours with age and sunlight
- Cheap and clean technology

Thermal Transfer Printing

- Heated print head melts ink on ribbon and transfers to substrate.
  - Alpha / numeric coding
  - Half tone printing
- Any colour/multicolour printing
- Improved quality, higher cost

Laser Coding

- Lasers used to produce energy beam
- Burn of pigment on labels
  - Usually dark area, ink burned off to reviel white
- Etch Glass and plastic
- No inks etc required
- Usually 1 – 2 lines of text, bar codes data codes
- Non contact method

Plastic Polymerisation

Plastic Polymerisation

Ink Jet Coding

- Continuous Ink Jet
  - Continuous stream of ink droplets from nozzel
  - Deflected by electrodes to desired area
- Thermal & Piezoelectric
  - Bubbles of ink fired from series of nozzels

Ink Jet Coding

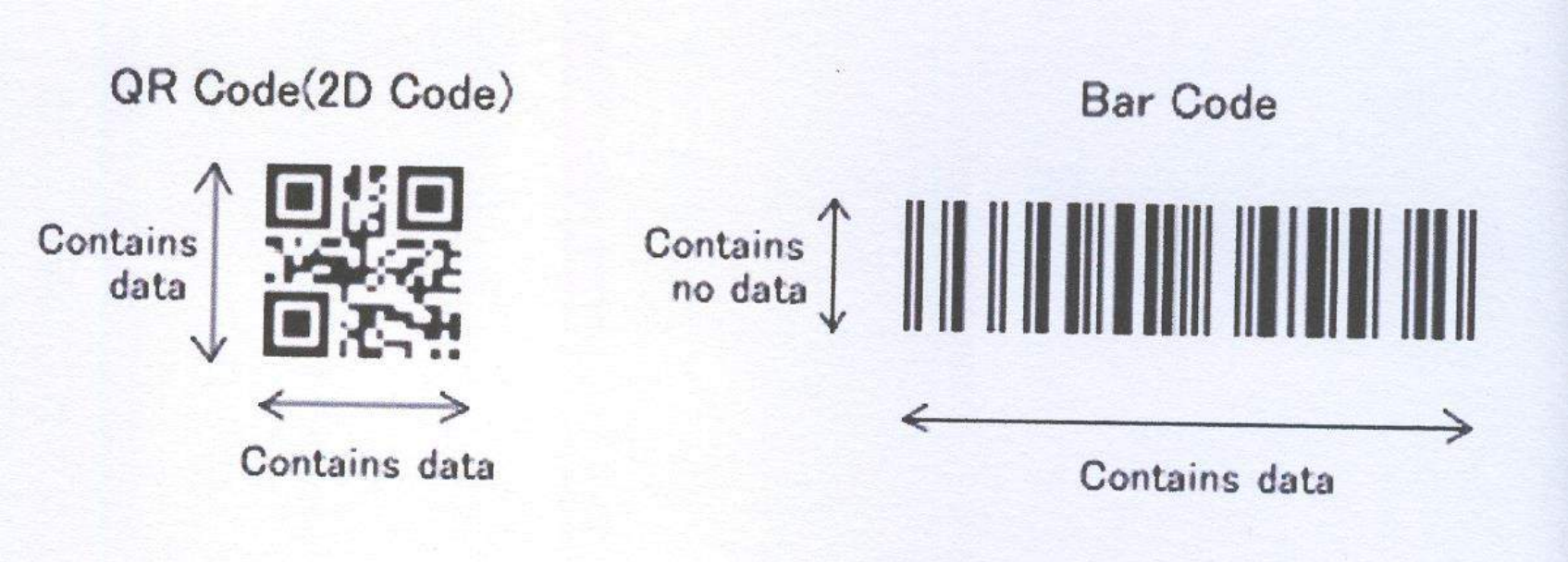
- Non Contact
  - Print on uneven surfaces
- Range of sizes
- Eatable inks available

Plastic Polymerisation

Machine Readable codes

- Bar Codes
- Data Codes
- Radio Frequency Tagging

Plastic Polymerisation



Radio Frequency Tagging

- Powered and un-powered
- Programmed and re-programmable
- No line of sight
- Problems with metal packaging
- Costs