

- (c) Linseed oil has several common uses, including as food (as a dietary source of unsaturated fats); as a health supplement (with claims to strengthen the immune system, reverse arteriosclerosis, inhibit tumour formation, and regulate cholesterol levels); and as a solvent for oil-based paints.
 - (d) During processing and storage of linseed oil, avoid excess light and exposure to air; store in dark bottles under constant refrigeration. It is too unstable to be used for frying, or spraying on pans for grilling or basting. Rags soaked in linseed oil may spontaneously combust due to gradual exothermic reaction with oxygen.
 - (e) Linseed oil may be classified as organic (compounds of carbon) as it is made by a plant. It is also natural as it is produced by plants.
14. Olive oil is primarily oleic acid (18 carbons, 1 double bond), which has a melting point of 44.2°C. It is a monosaturated oil, which is the most desirable type of dietary fat, having the effect of lowering LDL cholesterol and total cholesterol levels.
- Coconut oil is primarily lauric acid (12 carbons, no double bond), with a melting point of 13.4°C. It is a saturated oil, which is a less desirable type of fat, associated with increased risk of heart disease. It is also thought to increase LDL cholesterol (low-density lipoprotein, or “bad,” cholesterol) and total cholesterol levels, so should make up no more than 7% of total calories in any diet.
- Cholesterol has long been thought to have an effect on heart health: LDL is the major cholesterol carrier in the blood. Too much LDL cholesterol in the blood results in a buildup on the artery walls, causing formation of plaque that can clog the arteries. A clot that forms near the plaque can block blood flow to the heart muscle (causing a heart attack) or the brain (causing a stroke).

CAREERS IN CHEMISTRY

PRACTICE

(Page 137)

Making Connections

1. (Answers may vary. Sample answer)

Polymer Chemist

Typical projects for a polymer chemist might include research and development of synthetic polymer for specific consumer needs such as fibres for clothing and carpets, and pharmaceutical work. Attractive features of the job include creativity and innovation, nonroutine and stimulating work, and flexible hours. As well, skills are transferable across industries and locations with chemists working in either academic or industrial settings. Polymer chemists require significant training and education—usually a master’s or doctoral degree in chemistry or a related field. The job might also entail submitting grant proposals for funding research.

CHAPTER 2 LAB ACTIVITIES

INVESTIGATION 2.1.1 IDENTIFICATION OF PLASTICS

(Page 138)

Evidence

- (a) (Sample table)

Sample	Density	Flame colour	Acetone	Melting
1				
2				
3				

Analysis

- (b) **Part 1:**

In water: Samples that float may be resin codes 2, 4, or 5 (less dense than water, whose density is 1 g/mL); samples that sink may be resin codes 1, 3, or 6.

In alcohol solution: Samples that float may be resin codes 4 or 5 (less dense than alcohol solution); samples that sink may be resin code 2.

In oil: Samples that float may be resin code 5 (less dense than resins 4 and 5); samples that sink may be resin code 4.

Part 2:

Flame test: Of possible resin codes 1, 3, or 6, resin code 3 contains chlorine atoms. The sample that produces a green flame is resin code 3.

Part 3:

Acetone test: Of the possible resin codes 1 or 6, resin code 6 softens in acetone. The samples that soften in acetone are resin code 6. The samples that did not soften may be resin code 1.

Part 4:

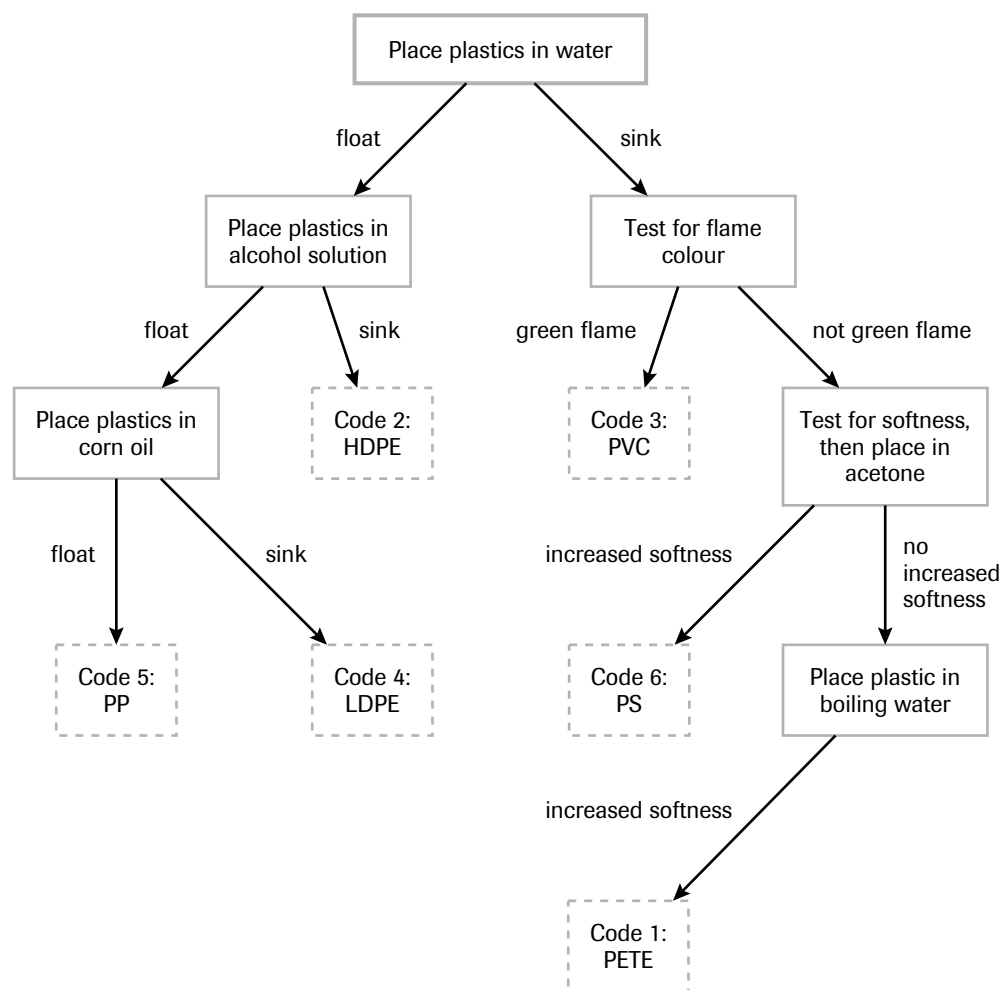
Melting test: possibly resin code 1. If the sample softens in boiling water, this confirms that it is resin code 1.

Evaluation

(c) (Sample answer) Repeat the procedure using known resin samples, codes 1 to 6, to confirm results of tests.

Synthesis

(d)



ACTIVITY 2.1.2 MAKING GUAR GUM SLIME

(Page 140)

- (a) The slime stretches and then returns to its original shape. It is stretchable and flexible.
- (b) The slime breaks.
- (c) The slime breaks with a sharp surface at the break.
- (d) The slime takes on the shape of a long string.
- (e) The slime softens and starts to liquefy.