

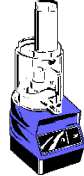


Design & Manufacture

Homework 21

Thermoplastics

	PLASTIC	PROPERTIES	USES
USED IN SCHOOL	Polymethyl-methacrylate (Acrylic or PMMA)	Rigid, hard, can be clear, very durable outside, polishes to a high shine.	Illuminated signs, windows, baths,
	Polyethylene (polythene)	Flexible, soft, good chemical resistance, feels waxy	Food bags, buckets, bowls, bottles.
	Polyamide (nylon)	Tough, self lubricating, resists wear, good chemical resistance	Gear wheels, bearings, tights, combs
	Polystyrene	Lightweight, hard, rigid, can be clear, good water resistance	Model kits, utensils, containers, packaging
	Expanded Polystyrene	Very lightweight, floats, good heat insulator	Insulation, packaging

	PLASTIC	PROPERTIES	USES
USED IN INDUSTRY	Polyethylene terephthalate (PET)	Tough, clear, lightweight,	Fizzy drinks bottles 
	Polypropylene	Lightweight, flexible, resists cracking and tearing	Climbing ropes, crisp packets 
	Acrylonitrile butadiene styrene (ABS)	Very tough, scratch resistant, good chemical resistance	Casings for cameras, kettles, vacuum cleaners 

Questions

1. Which plastic would you choose for making a window frame and why?

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2. Which plastic would you choose to protect a china ornament sent by post?

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3. Which plastic would you use for making a house number sign and why?

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Design & Manufacture

Homework 21

Thermosetting plastics

	PLASTIC	PROPERTIES	USES
U S E D I N S C H O O L	Polyester resin (mixed with glass fibre - GRP)	Hard, rigid, brittle, tough when mixed with glass or carbon fibres	Boat and car bodies, paper- weights
	Epoxy resin (Araldite)	Strong, good chemical and heat resistance, sticks to other materials well	Adhesive encapsulating electronic components
U S E D I N I N D U S T R Y	Polyethylene teraphthalate (PET)	Rigid, hard scratch resistant, water and stain resistant	Table ware, laminare top coating
	Urea formaldehyde	Rigid, hard, strong, heat resistant, does not bend when heated, good electrical insulator	Electrical plugs and sockets, door knobs

Questions

1. Which plastic would be best for making the casing of a cool-wall toaster?

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2. Which plastic has the properties required for making a saucepan handle?

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