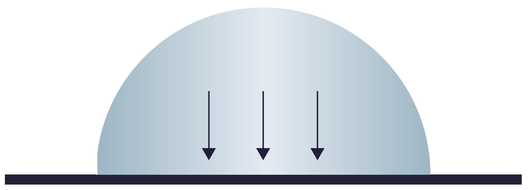
Surface Energy Chart

The **surface energy / surface tension** of a substrate determines how readily an adhesive can ‘wet out’ on the surface. Typically, adhesion will be at its best when the **surface energy** of the substrate is higher than that of the adhesive. It is poor when the substrate **surface energy** is lower than the adhesive.

Easiest to Bond

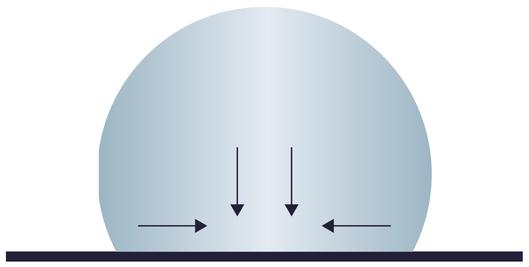
Metal Surfaces
(High Surface Energy)



mJ/m^2	Surfaces
1103	Copper
840	Aluminium
753	Zinc
526	Tin
458	Lead
700-1100	Stainless steel
250-500	Glass porcelain

Easier to Bond

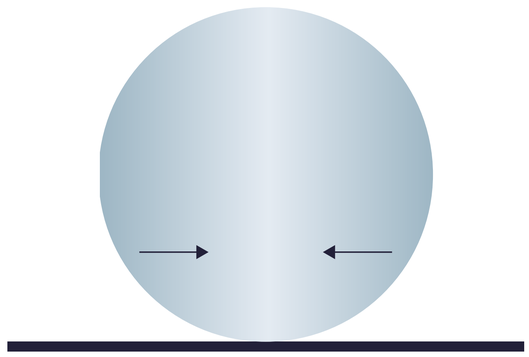
High Surface Energy Plastics (HSE)



mJ/m^2	Surfaces
50	Kapton® industrial film
47	Phenolic
46	Nylon
45	Alkyd enamel
43	Polyester
43	Epoxy paint
43	Polyurethane paint
42	ABD
42	Polycarbonate
39	PVC rigid
38	Noryl® resin
38	Acrylic

Difficult to Bond

Low Surface Energy Plastics (LSE)



mJ/m^2	Surfaces
37	PVA
36	Polystyrene
36	Acetal
33	EVA
31	Polyethylene
29	Polypropylene
28	Tedlar® polyvinyl fluoride film
18	PTFE
18*	Powder coated paints
*	Waxes used in powder coat paints create a low surface energy.