Plate 47 Membrane Separations: Dialysis in Medical Separations Kidney (haemodialysis) machine, used for the removal of waste materials from the bloodstream of a person whose kidneys function insufficiently. A stream of blood from an artery is circulated through the machine on one side of a semipermeable membrane, while a solution of comparable electrolytic concentration circulates on the other side. Water & waste products pass across the membrane but blood cells & proteins are too large to do so. Purified blood is returned to the body through a vein. Circulating blood is visible inside the plastic tubing. (Reproduced with permission from Science Photo Library.)