***Chemistry***

**11: Solutions and Colloids**

**11.5: Colloids**

71. Identify the dispersed phase and the dispersion medium in each of the following colloidal systems: starch dispersion, smoke, fog, pearl, whipped cream, floating soap, jelly, milk, and ruby.

Solution

|  |  |  |
| --- | --- | --- |
| Colloidal System | Dispersed Phase | Dispersion Medium |
| starch dispersion | starch | water |
| smoke | solid particles | air |
| fog | water | air |
| pearl | water | calcium carbonate (CaCO3) |
| whipped cream | air | cream |
| floating soap | air | soap |
| jelly | fruit juice | pectin gel |
| milk | butterfat | water |
| ruby | chromium(III) oxide (Cr2O3) | aluminum oxide (Al2O3) |

73. How do colloids differ from solutions with regard to dispersed particle size and homogeneity?

Solution

Colloidal dispersions consist of particles that are much bigger than the solutes of typical solutions. Colloidal particles are either very large molecules or aggregates of smaller species that usually are big enough to scatter light. Colloids are homogeneous on a macroscopic (visual) scale, while solutions are homogeneous on a microscopic (molecular) scale.

75. How can it be demonstrated that colloidal particles are electrically charged?

Solution

If they are placed in an electrolytic cell, dispersed particles will move toward the electrode that carries a charge opposite to their own charge. At this electrode, the charged particles will be neutralized and will coagulate as a precipitate.

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