



**Figure 11.12** Sulzer Suspension Crystallizer.

column. Similarly, after the countercurrent washing process, product can be harvest at the bottom and the rising washing liquid could be added into 3# crystallizer from the top to increase productivity. Although CCCC crystallizers show a lower energy demand and can reach high purity of products, the control and operation system turn out to be difficult. So far, it has been used in the separation of organic isomers on an industrial scale.

#### 11.4.1.11 *Sulzer Suspension Crystallization Technology*

The schematic Sulzer suspension crystallization process<sup>12</sup> is shown in Figure 11.12. The crystallization loop includes a crystallizer and a growth vessel. The feed flow is added into the growth vessel and circulated into the scraped crystallizer to generate crystals. Then, the mature crystals are transported into the piston type wash column. The suspension is compressed by the piston which has a filter screen to separate the melt residue and crystals. The residue leaves the system from the top of the wash column as waste, while the crystals are washed counter currently by the rising wash liquid coming from the melter. Purified crystals are scraped off from the bottom of wash column and melted in the melter as the final product. This process has been applied to a series of organics, such as acetic acid, carprolactam, ionic liquids, p-dichlorobenzene, phenol, and so on.