

The bulk of the growth in industry production during the 1980s has been concentrated in technical plastics -- that is, in plastics developed for specific uses and manufactured to generally high quality standards.<sup>27</sup> The production of standard plastics has also expanded and may be expected to continue to do so on account of the wide dispersal of plastics consumption within the EC. The per capita consumption of plastics in West Germany is almost three times the per capita consumption in Spain and more than twice that of France, the U.K. and the Netherlands.<sup>28</sup> There is, therefore, room for a much broader use of, and demand for, standard plastics in a number of EC countries. But the largest growth in demand will be for technical plastics.

As in chemicals as a whole, Europe is a major international player in plastics. In standard plastics the volume of EC output is a little larger than that of the U.S. and more than twice the output of Japan.<sup>29</sup> More important, the EC is responsible for two-thirds of total plastics exports of the Organization for Economic Co-operation and Development (OECD), the F.R.G. alone producing more than one-fifth. The plastics industry is also important to the EC in that it accounts for an unusually high proportion of total EC exports. Whereas plastics accounted for 3.8 per cent of total EC exports, they only accounted for 2.3 per cent of U.S. and 1.4 per cent of Japanese exports. However, against this export strength (and dependence and vulnerability) must be set the apparent weakness of the EC in recent plastics inventions. The U.S., with a large chemical industry with much of its output consumed in its domestic market accounted for almost 38 per cent of world patented inventions, more than 4 per cent more than the EC. The relevant figures are presented in Table 6.

Since the European chemical industry has flourished during the sustained expansion of the past five years, it has accumulated substantial financial reserves and is well equipped to confront future challenges. Central among those challenges will be its response to a number of regulatory initiatives. In particular, both in the politics of several of the individual countries and in the politics of the EC as a whole, there is great concern with the effects of contact with plastics on the quality of food and medicine, with the fire safety of plastics, and with the ecological aspects of plastics use. For the foreseeable future, a substantial part of the technological efforts of the industry can be expected to be directed towards these concerns.

## 2.2 Advanced Industrial Materials

Advanced industrial materials is not an area on which useful aggregate data are available. The production and export figures on advanced fibre reinforced composites (e.g. carbon fibre products) are buried within the figures for fibreglass production for marine and other recreational uses. The figures on ceramics include various kinds of tableware, tiles, drainage materials, etc.<sup>30</sup>

However, the following observations are possible. First, the European strength in synthetic resin manufacture gives European countries a strong technological base in the development of advanced plastics and plastics composites. Second, countries with strong defence industries within the EC, such as France and the U.K., and Sweden within EFTA, have a strong, heavily government-subsidized base for the development of advanced industrial materials. Third, in advanced ceramics, there is some sense that Europe lags behind the United States and Japan.<sup>31</sup> Fourth, as a complement to the 1992 program, the EC has established the Basic Research in Industrial Technologies