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15 May 2007

Available online 24 May 2007

doi: 10.1016/j.jhazmat.2007.05.053

**Renewable Resources and Renewable Energy: A Global Challenge, M. Graziani, P. Fornasiero (Eds.). CRC Press/Taylor & Francis Group, Boca Raton, FL (2007). 380 pp. Price: USD \$129.95, ISBN: 978-0-8493-9689-2**

The popular press has articles daily discussing global warming and the cause thereof, carbon dioxide emissions. Calls reverberate for reduction in carbon dioxide generation. While that may be useful, I think that is a side issue. Sustainability, in my opinion, is the more important topic. Consequently, if carbon dioxide generation is reduced by using less fossil fuel in power generation by using renewable technology, we would attack the global warming problem directly. Otherwise we lose, as given the worldwide demand for power, fossil fuels which contain carbon will continue to be the basis of that power – or at least until they run out. This book, as the title suggests, discusses that problem, that is, renewability.

Written by 42 contributors from 12 countries (with Europe dominating), the authors present technical data on the world's potential sources of sustainable fuels which topic they note is "urgent."

Ethanol is currently the fuel being discussed at length. It is interesting, because as a liquid, it mimics gasoline as a "mobile" fuel. Moreover, it can be produced from biomass of which only 7% of the 155 billion tons produced worldwide annually are utilized. Ethanol and other renewal resource products are discussed in the book's first section whose chapter titles are noted below:

**Part I: Technologies for Application and Utilization of Renewable Resources:**

1. rationale, drivers, standards, and technology for biobased materials;
2. biobased key molecules as chemical feedstocks;
3. industrial chemistry with nature-based bioprocesses;
4. catalytic conversion of carbohydrates to oxygenates.

Section II focuses on plastics. The first chapter notes that: "more than 98% of plastics are based on fossil feedstocks (crude oil), the reserves of which are predicted to last for only approximately 80 more years." Currently, we consume 30 kg of oil per capita worldwide with 80–100 kg being utilized in industrialized countries. In the chapters (titles shown below), the authors describe in much detail processes for plastics production of a variety of processes.

**Part II: Plastics and Materials from Renewable Resources:**

5. developments and future trends for environmentally degradable plastics;
6. production of plastics from waste derived from agro food industry;
7. on the environmental performance of biobased energy, fuels, and materials: a comparative analysis of life-cycle assessment studies.

The second major "renewable" fuel currently garnering much attention is hydrogen. It is a "clean" fuel that is noted in one chapter as "the energy source of the future." The same author notes that hydrogen is the most plentiful element in the universe making up to 75% of the mass of all visible matter in stars and galaxies. Currently much of the hydrogen produced comes from oil-based processes, but it could be produced biologically or by electrolysis of water – a process being studied on behalf of nuclear power plants. One nuclear power plant I know in Canada is looking for ways to use its excess power in times of low demand to produce hydrogen. This section of the book contains the following material:

**Part III: Technologies for Renewable Energy:**

8. hydrogen production and cleaning from renewable feedstock;
9. gasification of biomass to produce hydrogen;
10. sustainable biological hydrogen production;
11. hydrogen-based technologies for mobile applications;
12. efficiently distributed power supply with molten carbonate fuel cells.

The final section of the book looks at technical advances in developing countries as noted below:

**Part IV: Trends, Needs, and Opportunities in Developing Countries:**

13. renewable resources and energy in the Asia Pacific region;
14. development of renewable energy in Malaysia;
15. outlook on catalytic technologies for sustainable development: the Argentina case;
16. marketing photovoltaic technologies in developing countries.

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22 May 2007

Available online 31 May 2007

doi: 10.1016/j.jhazmat.2007.05.073