

# Plastic piping systems...here's to your health!

by David A. Chasis

**B**ecause of its dramatic success in penetrating markets where traditional piping materials have been used, plastic pipe has become one of the most criticized of any fluid-handling products. Often, the plastic piping industry must counteract the unrelenting attacks by non-plastic rivals, labor unions and environmental extremists.

To provide proof to architects, specifying engineers and in response to skeptics, the industry has launched and endorsed Life Cycle Assessment (LCA). LCA *scientifically* analyzes the environmental burdens of a product's life from raw material extraction to the product's end-of-life resolution. The first phase of the analysis, including raw material extraction through pipe manufacture, is completed. Based on the preliminary LCA report findings of North American companies, plastic piping has significantly lighter environmental burdens than competing piping materials.

Yet, one of the areas not covered in this and other LCA studies is the safety of workers who are involved in producing piping raw materials and finished piping products. Fortunately, this safety data has been collected and is available from the United States Bureau of Labor. Safety performance in most industries has improved over the last 14 years based on OSHA reporting of injuries and illnesses (IIR). Surprisingly, the trend shows over this time period that the plastic piping industry is well below the average IIR rate when compared to other non-piping industries including agriculture, retail trade and general manufacturing.

Table I lists the 2006 injury and illness rates for selected piping industries based on the total U.S. industry reporting of 111,273,100 employment hours with an average incidence rate of 4.4 per 100 full-time workers. As you can see from this table, the labor force involved in producing plastic piping feed stocks and products have appreciably fewer injuries and illnesses when compared with other piping systems. (Author's note: if concrete and vitrified clay pipe were in the breakdown, plastic pipe would still show fewer injuries and illnesses compare to these piping products.)

Next time you meet an anti-plastic piping group that has *green, health, justice* or *peace* in their association name, ask them if it is their intention to promote non-plastic piping materials to the detriment of both the labor force and the environment. Plastic piping systems ... here's to your health! ■

David A. Chasis is president of Chasis Consulting, Inc., author of the book "Plastic Piping Systems," and a member of and consultant to the Plastic Pipe and Fittings Association. He can be reached at Chasis Consulting, Inc., 329 The Hills Drive, Austin, TX 78738 USA; (512) 261-9115, fax (512) 261-3518, e-mail: dchasis@austin.rr.com, www.davidchasis.com.

**TABLE I**  
2006 Incident Rate of Injuries and Illnesses  
of Selected Piping Industries

Piping Materials	*NAICS No.	**Incident Rate	% Plus/Minus vs. Rate (4.4)
<b>IRON &amp; STEEL</b>			
Iron Ore Mining	212210	2.4	
Iron/Steel Mills	331111	5.4	
Iron Foundries	331511	15.1	
Iron/Steel Pipe & Tube Manufacturing	331210	9.5	
Average Rate		8.1	+ 84.1
<b>COPPER</b>			
Copper Ore Mining	212234	3.4	
Copper Foundries	331525	8.0	
Copper Smelting/Refining	331411	4.4	
Copper Roll/Draw/Extruding	331421	10.1	
Average Rate		6.5	+ 47.7
<b>PLASTIC</b>			
Oil/Gas Extraction	211	2.0	
Petrochemical Manufacturing	325110	1.0	
Petrochemical Refineries	326122	1.4	
Plastic Material & Resin Manufacturing	325211	3.0	
Chemical Manufacturers	325000	2.9	
Plastic Pipe & Fittings Manufacturing	326122	7.0	
Average Rate		2.9	- 34.1

\* NAICS is the code for North American Industry Classification System.

\*\* The incidence rate combines injuries and illnesses as reported by the U.S. Bureau of Labor.