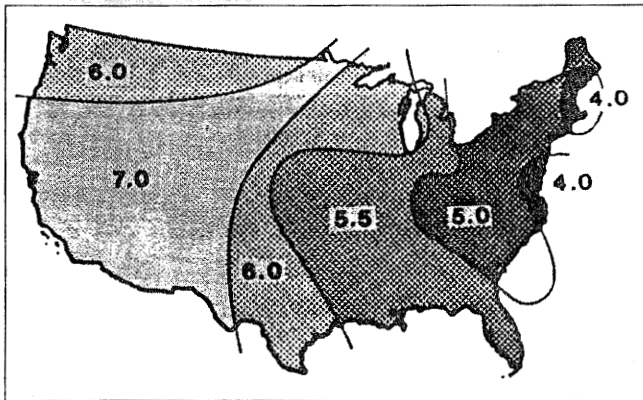


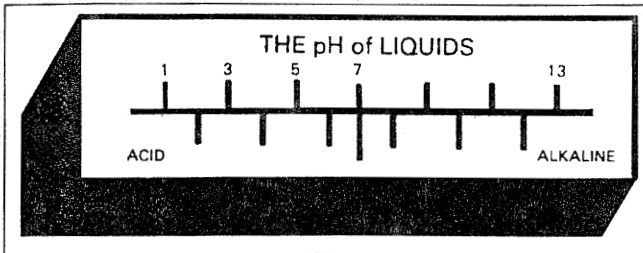
# ASK DR. GALV

**Q. Dear Dr. Galv: How is acid rain measured and what do we know about the corrosion protection of galvanizing in "acid rain conditions"?**

**A.** Our highly industrialized society and fast-paced lifestyle have resulted in greater quantities of hydrogen atoms being distributed by wind currents or absorption and later release by rain clouds. Chemical pollutants combine with atmospheric moisture to create acid rain. Due to heavy industrialization, major cities often have the highest levels of acid rain. Carbon monoxides from the exhausts of automobiles and chemicals from industry are the main contributors of the raw materials that create acid rain, but other sources include fertilizers and pesticides. The map below, compiled by the National Center for Atmospheric Studies, indicates acid rains falling on the United States vary in pH content.



The lower a pH (which means "part of hydrogen") number, the more acidic the solutions being described. A pH number identifies degree, not amount, of a solution's acidity or alkalinity.



The neutral point on the pH scales is 7.0. Think of the above picture as a weighing scale which tips to the left (where numbers are

lower) for acid content and to the right (higher numbers) for alkaline content. Rain water can vary from a pH of 3.0 to a pH of 8.5, depending on meteorological conditions and the geographical location where it falls.

The question of how the galvanized coating protects in acid rain conditions has no definite answers. However, if the question is asked by a prospective customer, helping them to understand the problem may be beneficial. Studies conclude that factors such as air direction, velocity, surface wetness and duration of its wetness, combined with average temperature, can be used to estimate where the effects of acid rain is likely to be more severe. These factors also provide clues to dealing with the problem.