## Mercury in Neon and Argon Outdoor Sign Lamps

The use of mercury in outdoor sign lamps dependes on the type of gas used, not necessarily the sign color eventually resulting. Two types of gas are used to fill lamp tubes: neon and argon. Neon (Ne) gas emits <u>red</u> light when charged with electricity and does not need mercury. Argon (Ar) gas emits <u>blue</u> light when charged with electricity and needs mercury to make color bright. Different colors are made using the two gases and different types of glass (clear or coated with various phosphor powders). Industry wide, the split between neon (contains no mercury) and argon (contains mercury) lamps is about 50/50.

Here is a general description of the argon lamp making process. When lamp is first made, a "small drop" of mercury is put in (the same amount no matter what length the lamp is). The lamp glass is fused closed. The lamp is activated with electricity. As the mercury is rolled along the inside of the now lighted lamp from end to end, you can see the color get brighter. For glass coated inside with phosphor powder to provide different color, the mercury gets absorbed onto the powder.

Note: This information was provided courtesy of an outdoor sign company in Florida which has been in the business for more than 25 years. No other sources of information on mercury use in neon or argon outdoor sign lighting are known to the Department. This information has not been verified by the Department of Environmental Protection and is provided solely as a service to the public.