The **Blanc chloromethylation** (also called the **Blanc reaction**) is the chemical reaction of aromatic rings with formaldehyde and hydrogen chloride catalyzed by zinc chloride or other Lewis acid to form chloromethyl arenes. The reaction was discovered by **Gustave Louis Blanc** (1872-1927) in 1923. The reaction is performed with care as, like most chloromethylation reactions, it produces highly carcinogenic bis(chloromethyl) ether as a by-product.

![Chemical reaction diagram]

**Mechanism**

The reaction is carried out under acidic conditions and with a ZnCl₂ catalyst. These conditions protonate the formaldehyde carbonyl making the carbon much more electrophilic. The aldehyde is then attacked by the aromatic π-electrons, followed by rearomatization of the aromatic ring. The benzyl alcohol thus formed is quickly converted to the chloride under the reaction conditions.

![Mechanism diagram]

Although the reaction is an efficient means of introducing a chloromethyl group, the production of small amounts of highly carcinogenic bis(chloromethyl) ether is a disadvantage.

**Related chloromethylations**

Chloromethylation can also be effected using chloromethyl methyl ether:

\[
\text{ArH} + \text{CH}_3\text{OCH}_2\text{Cl} \rightarrow \text{ArCH}_2\text{Cl} + \text{CH}_3\text{OH}
\]

This reaction is employed in the chloromethylation of styrene in the production of ion-exchange resins and Merrifield resins.