

Cyanoacrylate Fuming: An Alternative Non-heat Method

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Numerous techniques and procedures have been described utilizing cyanoacrylates - "CA" (Super Glue®) for the fuming and development of latent prints. One of the most widespread methods used requires heat for acceleration of "CA" volatilization. [1-2]

There are some limitations to the heat method. A power source is needed and multiple chambers cannot be utilized simultaneously unless separate heat sources are used. Because of these limitations, an alternative, low cost, convenient method was sought. After consulting a polymer chemist [3], it was felt that another approach was to increase the surface area of the cyanoacrylate so that more could be volatilized. It was suggested that kneading a small amount of "CA" in a plastic bag would be a solution, but it was found to be messy when one tried to invert the bag. Another approach was to make an aluminum foil sandwich with "CA," taking advantage of aluminum's property of retarding cyanoacrylate auto-polymerization. [1-2]

Procedure

The "CA" sandwich is prepared by taking a 15 x 20 cm (6 x 8 in) piece of aluminum foil and making a widthwise crease down the middle. A thin bead of cyanoacrylate is placed on the aluminum foil, midway between the crease and the edge of the foil, and 12 mm (1/2 in) in from the edge (Figure 1). The foil is folded over onto the cyanoacrylate bead and a fingerprint ink roller or similar

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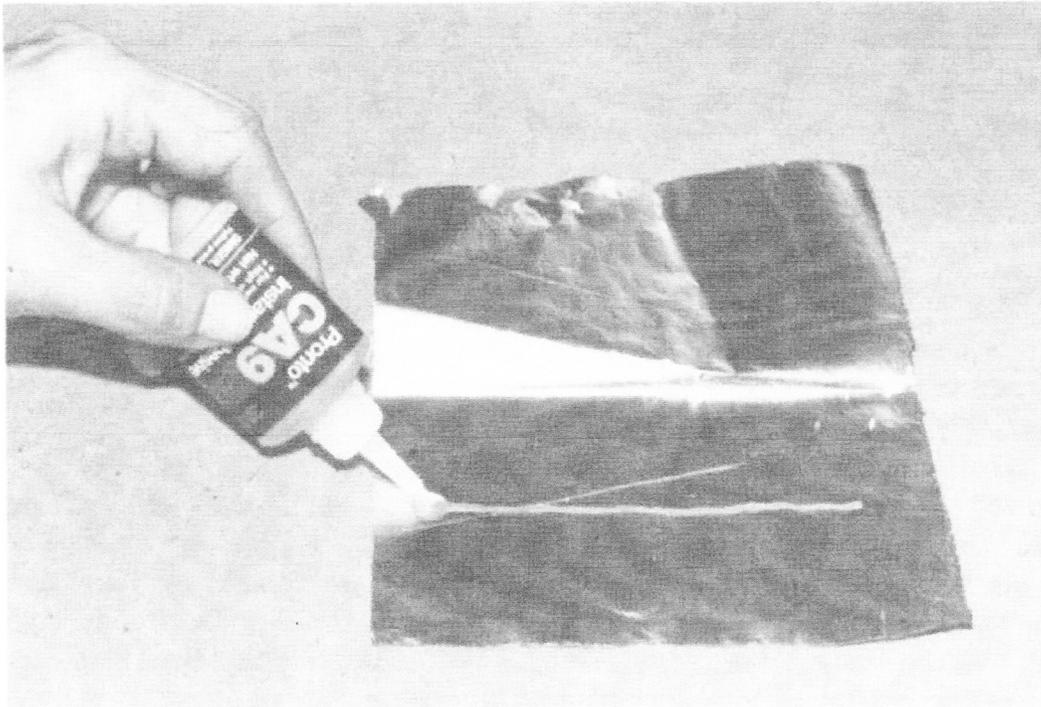


Fig. 1 | Applying a thin bead of cyanoacrylate to the aluminum foil.

cylindrical object is rolled on the foil to evenly distribute the “CA” substance (Figure 2). The fuming process starts as soon as the foil is pulled apart.”

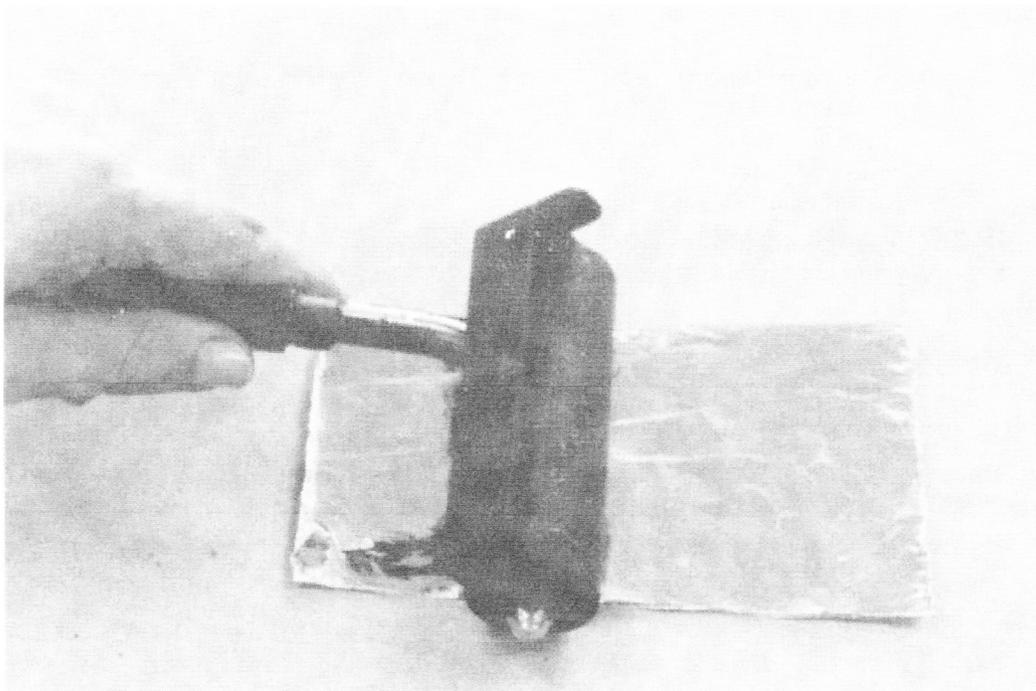


Fig. 2, Dispersing the cyanoacrylate as a thin film with the use of a fingerprint roller.

A fuming chamber is prepared with the items to be fumed placed strategically in the chamber. A cup of *warm* water (approximately 50° C) is placed in the chamber and allowed to set several minutes before the fuming process. This makes the fingerprint residue more receptive to the "CA" vapors.

The "CA" treated aluminum foil is pulled apart and positioned in the chamber, and a lid placed on the chamber.

Observations

The results can be observed in ten minutes, but the exhibits are usually allowed to fume for approximately one-half hour. This "CA" treated foil can effectively fume a **50-gallon** container if allowed to sit for several hours.

Successful results have also been obtained in fuming automobiles and vans if allowed to set overnight; however, two to four "CA" treated foils will be needed, depending on the size of the vehicle.

After using cyanoacrylate for a number of years, observations indicate that best results are obtained when the ambient humidity level is moderately high and, conversely, the poorest results are obtained when the humidity level is very low or extremely high (**95%+**). If only faint results are observed, repeat the fuming after the evidence has been exposed to increased humidity (i.e., a beaker or cup of *warm* water) for several minutes in a closed container.

This technique is very economical as it increases the fuming effectiveness while requiring lesser amounts of cyanoacrylate substance. If the cyanoacrylate is purchased in bulk amounts, the cost per application will only be a fraction of a dollar.

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References

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