免洗助焊剂，历史意义大于功能意义。

In the late 1980s, the Montreal Protocol was enacted, which mandated the elimination of ozone depleting compounds

(ODCs), which were the predominant cleaning materials for rosin-based fluxes. This dramatically opened up alternatives in

the flux market to the rosin fluxes, and fluxes such as water-soluble fluxes, low residue fluxes, and synthetic fluxes were

placed on the market. Many manufacturers chose to examine new material sets and new manufacturing methods as alterna

tives to the high solids rosin fluxes and ODC cleaning. One of these avenues was to use low residue fluxes and to not clean

the assemblies. These low residue fluxes were designed to have stable and benign residues after soldering processes, which

was a stark contrast to the corrosive fluxes used previously. In this case, the manufacturer made a choice to use low resi

due fluxes in a no-clean assembly process. Flux marketers began selling the low residue fluxes as ‘‘no clean fluxes’’ per

J-STD-004.

80年代晚期，蒙特利尔协定要求消除臭氧破坏化合物排放。而在清洗助焊剂需要大量使用破坏臭氧的溶剂，因而市面上出现了免洗助焊剂。免洗助焊剂的正确理解应该是低残留助焊剂，因为低残留将使用更少清洁剂，减少臭氧破坏物排放，已满是协定要求。但是只要由助焊剂残留就会造成电路破坏，因而残留物应该被清洗，不存在真正的免洗助焊剂。

使用免洗助焊剂（低残留）的上游供应商不洗，那么下游客户就得洗。当然未清洗的供应品价格应该更低。但是助焊剂残留物都得经过成品供应商清洗后，才能保证成品的质量。

真正实现免洗，对于产业连来说技术成本代价是高昂的，目前也是不现实的。所以面前条件，对于使用低残留助焊剂还是得洗。