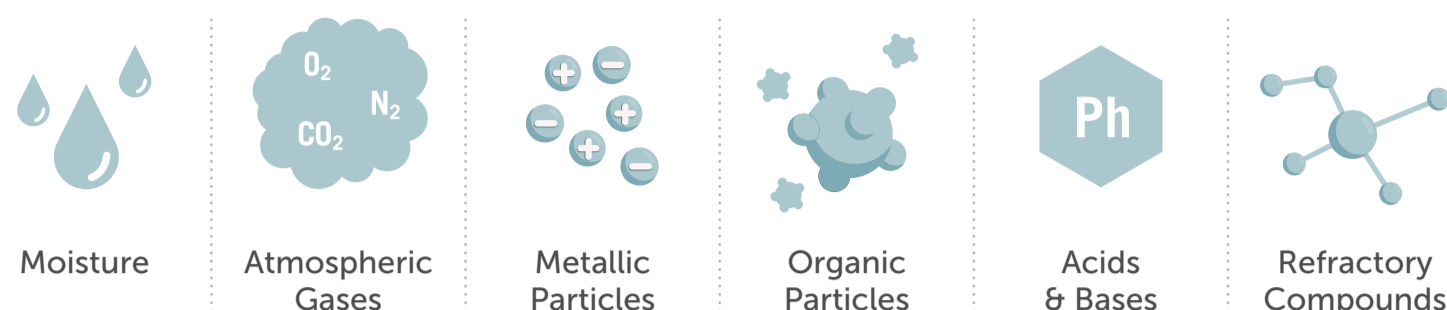


# The Growing Importance of Process Gas Purification

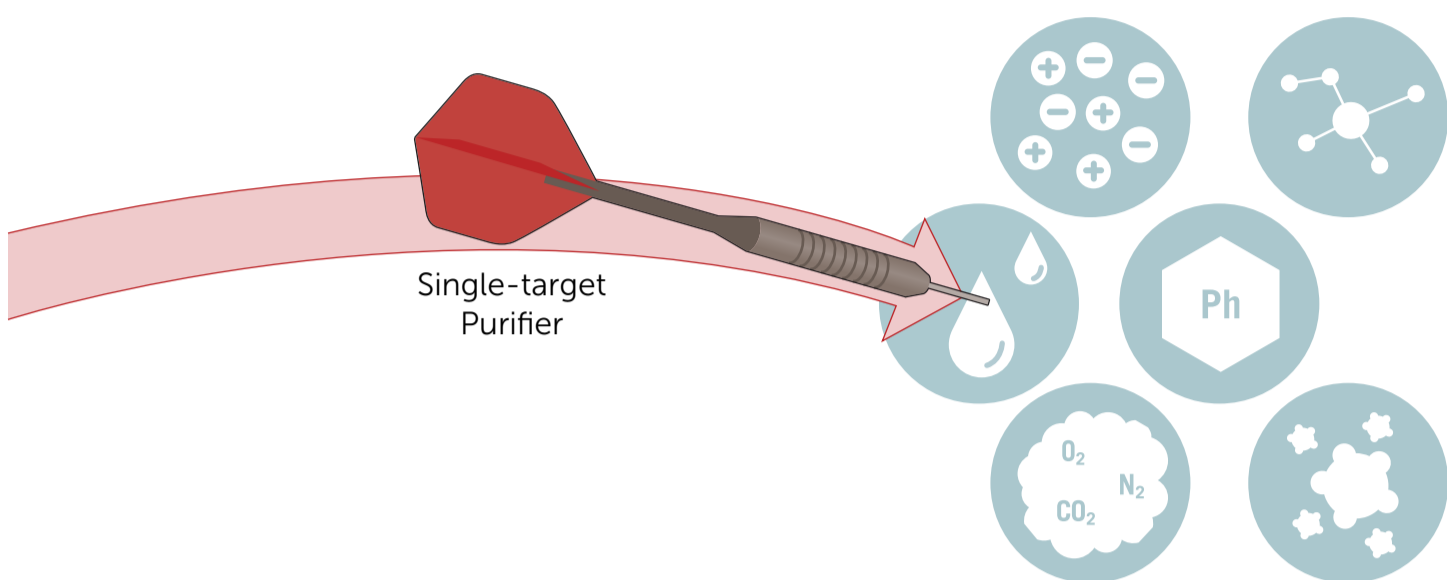
Semiconductor devices have gotten smaller, more geometrically complex, and use more types of materials, placing a much greater burden on the purity of process gases. More process steps means more process gas being consumed. Now even trace contaminants in the gas supply can have measurable impact on chip performance.

## TYPES OF CONTAMINANTS



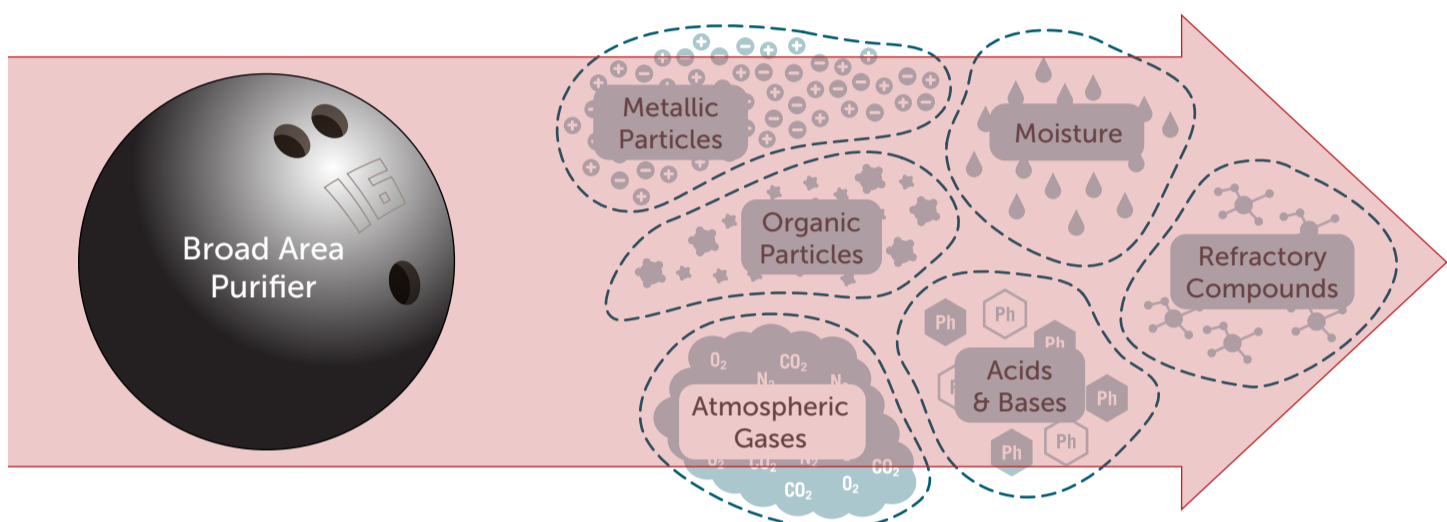
## THE OLD APPROACH: "THROWING DARTS"

Past devices were less sensitive to contaminants, so fabs tended to deal with them one by one, like throwing darts.

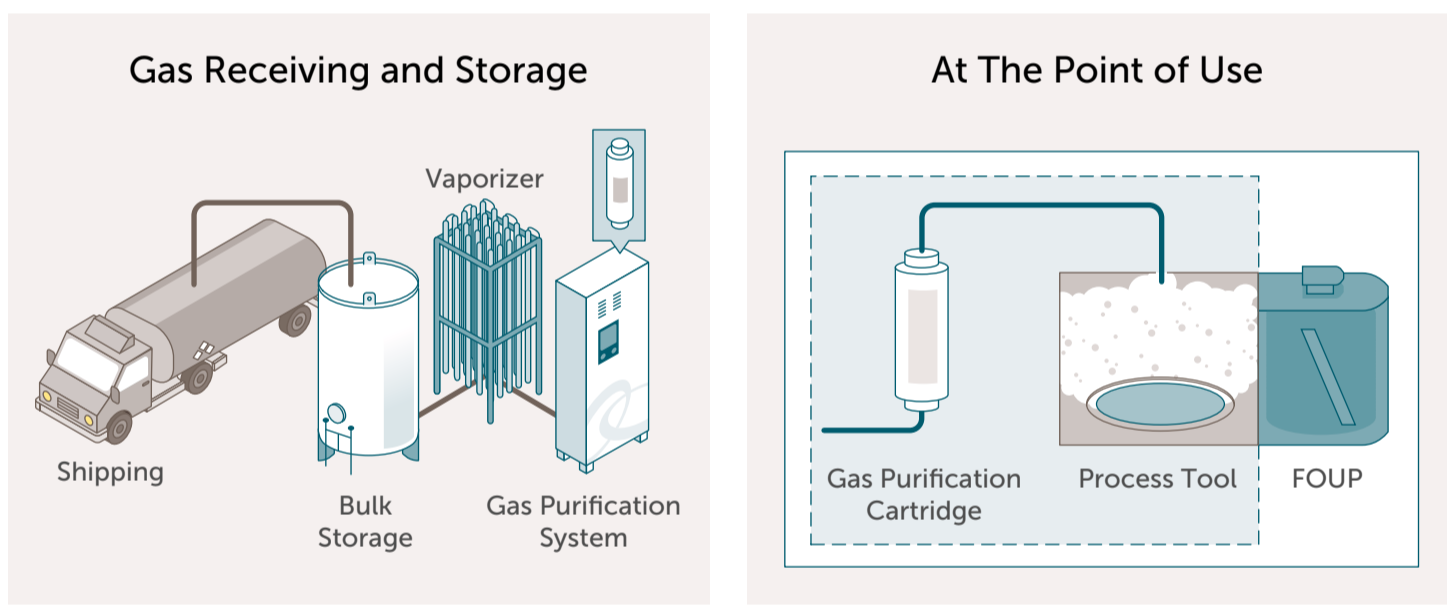


## TODAY'S APPROACH: "BOWLING FOR CONTAMINANTS"

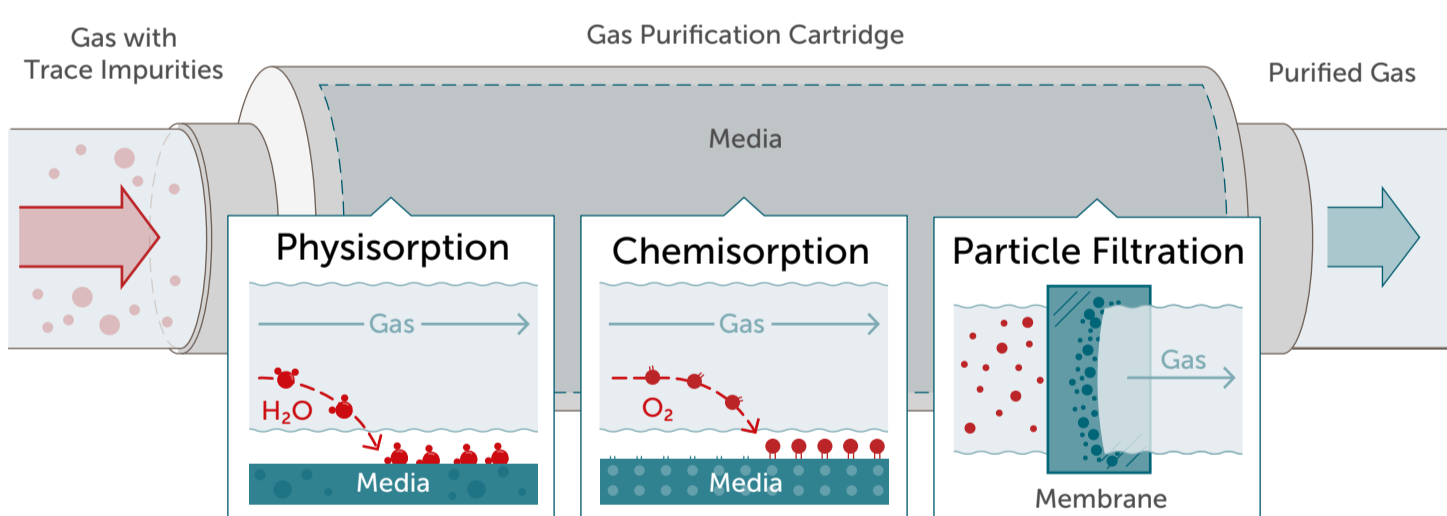
With much greater sensitivity to contaminant levels, and many more potential contaminants to worry about, fabs must adapt and address as many as possible with each purification step.



## PROCESS GAS PURIFICATION HAPPENS IN TWO KEY PLACES



## HOW ADVANCED PROCESS GAS PURIFICATION WORKS



## THE RESULT

The goal of process gas purification is to achieve the purity baseline and stay there through the preventive maintenance cycle.

