

Fire at SK hynix Wuxi Plant



OBJECTIVE ANALYSIS SEMICONDUCTOR MARKET RESEARCH



The following is a compilation of three Objective Analysis Alerts sent to our clients on September 4, 5, and 9, 2013.

Extent of Damage Not Yet Released

A fire erupted on 4 September 2013 in the SK hynix Wuxi, China, manufacturing complex. Production has been suspended at a facility that is believed to produce 40% of the company's DRAM. The fire lasted from 3:50-5:20 PM China Time.

The photograph at the left was copied from a [YouTube video](#) of a Korean newscast about the fire.

The investor relations department at SK hynix provided an official statement the following day to explain that the company was still investigating the extent of the damage and planned to provide further information it obtains about the impact of the event.

Key points from the statement:

- There were no casualties and only one minor injury
- Although some pictures show the fab surrounded by large dark cloud of smoke, the damage is not as severe as it seems. The fire was mainly in the air purification facilities on the rooftop of the fab and created a disproportionate amount of smoke
- There is no material damage to the fab equipment in the clean room
- SK hynix expects to resume operations shortly so that total production volume should not be materially affected

This statement is significantly more positive than the bulk of the conflicting stories that circulated on the web immediately following the fire.

On September 9 the company issued a revised outlook that was less positive, stating that the fab that was damaged by fire is still being evaluated, but the second Wuxi fab had been re-opened. The company said: "Our plan is to resume normal operations with full production capacity in the shortest time by ramping up operations in stages as soon as the damaged facilities are replaced."

This appears to contradict the company's earlier statement that operations will be resumed quickly so that production volume should not be materially impacted. The company does imply that it has inventory in Korea by stating: "We will continue to make every effort to minimize the impact on supply with our inventories of finished products and completely processed wafers as well as

production support from our headquarters." By "processed wafers" we assume that the company is saying that it has ample inventory of pre-packaged product to carry it through the closure. This is unusual for a DRAM firm, most of which keep inventories to a bare minimum.

It is unclear which of the two Wuxi lines is still closed. We understand that one fab has been producing 300mm wafers for some time. The other line previously processed 200mm wafers, but was shut for conversion to 300mm in 2012. It is unlikely that this line was running at full capacity at the time of the fire. There could be a significant reduction in SK hynix' volume if the higher-volume plant was struck by the fire, but this is not clear from the company's statement.

Will this Create a Shortage?

In a word: Yes! A fire of this magnitude that impacts the company's clean rooms could mean a 2-3 quarter delay before it is able to re-establish its prior shipping volume.

A historical precedent will help illustrate how this predicament is likely to evolve.

There are strong similarities between this incident and another fire in 1993. In July of that year a fire and explosion in a Sumitomo Chemical plant removed over 90% of the world's supply of a certain epoxy that was almost universally used to attach DRAM dice to their packages. The impact of this event was to galvanize a DRAM shortage that was already developing at that time. The shortage lasted until the end of 1995, longer than any shortage in the history of the DRAM market.

The duration of that shortage was not the result of the fire - other factors were at play. Still, the industry very quickly transitioned from the mild onset of a shortage to a very solid undersupply as a result of the incident, even though abundant alternatives to Sumitomo's epoxy were identified within a week.

Today the DRAM business and NAND flash, the two products that SK hynix produces, are entering a shortage that Objective Analysis expects to last until the middle of 2015. It is reasonable to expect for this fire to have a very similar impact, driving the industry from a mild undersupply to a significant one. Objective Analysis has advised its purchasing clients to finalize any plans for long-term supply agreements as soon as possible to prevent any avoidable deficits.

We warn that our clients and others impacted by this event should be skeptical about the various reports that are popping up about this incident. Little concrete news has been reported, and there is already a significant amount of disinformation online, with various sources in great disagreement about the details.

[Objective Analysis](#) specializes in the NAND flash, DRAM, microcontroller, embedded controller, and SSD markets, and provides our clients with strategic planning and forecasts to help guide their businesses. If your company needs a competitive edge, please contact us to learn what Objective Analysis can do for you.

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