

UP FRONT

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THERE ARE MANY WORRIES AS the commercial aerospace supply chain ramps up to unprecedented production rates. Can aeroengine OEMs fix their

new-engine teething problems? Can interior suppliers step up? Is there enough forging and casting capacity? Yet uncertainty of raw material supply could be the largest threat of all due to booming demand, tariffs and geopolitics.

Today, the global aerospace industry consumes some 1.7 billion pounds of raw materials per year, worth an estimated \$13 billion. Titanium comprises 30% of this total, followed by aluminum (22%), composites (21%), super alloys (14%) and steel (9%).

The first signs of raw material uncertainty emerged in early March of this year, when the Trump administration announced 25% tariffs on imported steel and 10% on aluminum. These tariffs extend beyond “mill” product like ingots, plate and sheet to include forgings, castings, extrusions and pipe. Canada and Mexico were exempted from the tariffs. Fearing a trade war, Argentina, Australia, Brazil, the European Union and South Korea were also added to the exemption list.

Overlooked

Looming threats in the raw material supply chain

U.S. sanctions announced in April against Russian oligarchs, including Oleg Deripaska, the CEO and largest shareholder of Rusal, the world’s second-largest producer of aluminum, added to the uncertainty. The move effectively banned Rusal from doing business in U.S. dollars and thus exporting aluminum to the U.S. The seeming randomness of the action—it was not clear why Deripaska was picked first for such harsh punishment—spooked investors, and aluminum prices increased 30% over a two-week period in mid-April.

The administration did not appear to have anticipated the knock-on effects of the action, as a Rusal plant in Ireland was threatened with closure, creating the potential for job losses and an alumina shortage throughout Europe. This led the U.S. Treasury Department to announce a six-month delay in implementing the sanctions. The aerospace industry is collateral damage from the sanctions, as mills typically utilize 25% of “prime” aluminum of the type produced by Rusal as input to create aluminum alloys. The other 75% is from scrap aluminum.

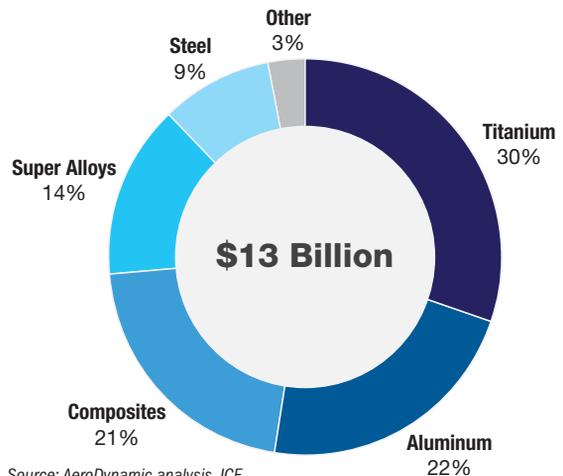
Against this backdrop, aerospace aluminum demand is galloping ahead, thanks to increasing production rates and defense spending. As a result, aluminum mill prices are up 10%, one major mill has stopped taking orders for 2018, and aluminum suppliers are using “price in effect”—which means they will not provide forward pricing to customers. This has not happened since the mid-2000s, and the implications are significant. A machine shop bidding on a contract, for example, must effectively take on the

risk of variable aluminum prices. As one aerospace executive noted: “The tariffs on aluminum, which captured everyone’s attention, were like throwing a pebble in a lake. The impact of sanctions is more like a boulder.”

The next step could be allocation, where a mill effectively sets quotas for the volume it will sell to a customer. “Allocation hasn’t happened since the 2005-07 time-frame, and given competing demands in automotive and aerospace growth, we are one step away,” says Trevor Stansbury, CEO of Supply Dynamics.

As challenging as the aluminum situation is, there is an even more ominous scenario. Russia recently indicated that, in response to sanctions, it might cut off titanium

2017 Aerospace Raw Material Demand



Source: AeroDynamic analysis, ICF

supply to the U.S. Russia’s VSMPO-Avisma is the world’s largest aerospace titanium supplier. Boeing depends on it for 35% of its titanium supply, including critical parts for aerostructures and landing gear, and the companies have two joint production facilities in Russia. There is not enough capacity to replace Russian titanium, and the Boeing 787 and 777X programs are especially vulnerable.

Will Russia exercise this “nuclear” option? Trevor Stansbury doesn’t think so. “There is lots of saber-rattling going on, and it is not in the interest of the Russians or the Americans to cut off titanium trade,” he says. “It is a great source of hard currency for Russia, a country with which the Trump administration has, at least until now, wanted to negotiate more friendly and cooperative relations. This is probably a grand negotiation.”

Hopefully this uncertainty will pass, as it ratchets up the pressure on suppliers already coping with unprecedented production rates. “With the exception of the largest OEMs,” Stansbury says, “everyone is flying blind in understanding these risks. They know where they make their parts, but they are unsure of the impact of the sanctions and tariffs and future of raw material prices.”

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