Good morning. As mentioned, I work for the Vac Air Division of Keywell LLC. For those of you who may not be familiar with Keywell, we are one of the world’s premier processors of titanium, super alloy, and stainless steel scrap. Our primary titanium and alloy processing facility is in Frewsburg, New York, south of Buffalo, New York.

Keywell processes a wide range of titanium scrap products for use in ingot production, alloy addition, and ferrotitanium production. The primary scrap products processed for ingot production are bulk weldable solids, feedstock, and turnings. Keywell does not currently operate a turnings line in house in Frewsburg, but we do provide unprocessed ingot quality chips to various consumers. All products with the exception of turnings are fully prepared and certified for melting at the Frewsburg facility.

I have been involved in the processing and trading of titanium scrap since I came in to the industry in 1979. I am not sure how many of you go back that far in our business (or can remember that long ago), but for those of you that do remember that period, it was very similar to the conditions we are facing during the current business cycle. Sponge supply was tight, scrap was scarce, demand was strong, and scrap prices seemed to escalate almost daily. For a new kid fresh out of school, it seemed to be a pretty easy business. You simply bought material and waited a very short period of time to be rewarded as the market escalated. What could be easier? Well, the market eventually corrected (severely as it usually does) and we were left for the next twenty years to talk about the never to be repeated scrap boom of the early 80’s. For sure, there were good periods of business in the late 80’s and then again in the late 90’s, but nothing that approached the demand frenzy or run up of scrap prices that we saw during that 1980-82 period.

We now fast forward to today. I think the term is “déjà vu all over again” and it only took 20 years. Sponge supply is tight, scrap supply is tight, demand is extremely strong, and suddenly not only are we back to the early 80’s again, we seem to have eclipsed that period in both demand and pricing.

What I would like to do is to examine how we got to where we are today; where exactly do we think we are at in the current cycle, and where we might be going. We’ll also take a look at what has changed in the industry in relation to scrap collection, processing and utilization.

Unfortunately, what I found in researching this presentation is that hard figures on scrap generation and usage are extremely difficult to come by. Scrap is not a manufactured product, it is a byproduct of manufacturing and thus unlike airplane build rates, or mill product sales, there does not seem to be a book that you can open up that tells us how much scrap is generated or available at any given time. We can extrapolate some scrap usage information from other data, but it is really rough estimates at best. What data
we do have should be looked at more in term of “trends” as opposed to individual data points.

As we look back to the conditions that set up the direction of the recent titanium scrap cycle, most observers point to two factors that laid the ground work for the scrap shortage and subsequent price run up that we have seen over the last two plus years. The first factor was the low airplane production rates in the early part of this decade. As you can see from this slide, airplane production rates bottomed out in 2003. The parts to build those planes were made well ahead of the airplane’s assembly which means that the parts manufacturing and subsequent scrap generation was already declining well ahead of this time. As we moved through 2003 available titanium scrap inventories were extremely low.

Then the proverbial second shoe fell. As we moved in to the second half of 2003, ferrotitanium demand picked up quickly coinciding with a pickup in carbon steel and stainless steel production. Ferroti producers came in to the market for their primary feed source, titanium scrap, and found depleted inventories caused by the low level of aircraft production, along with a major reduction in available obsolete scrap coming out of Russia. Even without any competing demand from titanium ingot makers, ferroti demand was strong enough to consume what scrap was available. This included not only traditional lower grade titanium scrap units used by the ferrotitanium producers, but also higher quality ingot grade solids and turnings. This is an important fact to keep in the back of our minds as we move through 2004 and demand for ingot quality titanium scrap reappears.

Without any major aerospace manufacturing, there was simply no way for scrap generation to keep up with ferrotitanium demand. As ferroti producers competed for units, the price of the scrap and subsequently the price of ferrotitanium escalated quickly. As we move in to 2004 this trend continues to escalate. By the middle of 2004 ferrotitanium prices have more than doubled from their low at the end of the third quarter of 2003.

These were the conditions that existed as ingot producers reappeared in the market place in the second half of 2004. As demand for ingot began to rebound, titanium producers came in to an already depleted scrap market at a time when ferroti demand and pricing continued to escalate quickly. Ingot producers faced two related problems. First, sourcing material in this market was difficult. There should have been prime bulk weldable and ingot quality chip waiting for them after several years of very low demand. As noted however, these inventories were gone. Secondly, ingot prices as they normally are at the beginning of a cycle were at relatively low levels making it difficult to compete for the scrap with the ferroti industry whose product price was soaring.

As we moved in to 2005, titanium ingot demand continued to rebound as the industry continued to compete with the ferrotitanium industry for scrap. You can almost see by this chart that the price of scrap was being dictated by the ferroti industry and the titanium industry was forced to react. I can remember discussing the situation with many
titanium people at the time as they lamented that the ferrotitanium guys could pay anything for scrap and simply increase their ferrotitanium sales price. I am not convinced that this is entirely true, but ferrotitanium does represent only a small percentage of the overall cost to make stainless or carbon steel. It was much more important that they had the product than what they paid for it. In contrast, titanium scrap is a large, if not the largest portion of the cost to produce titanium ingot.

Looking at the second quarter of 2005, we can understand the titanium industry’s concern as ferroti prices rocketed upwards. One interesting note on this slide is that if you look at the progression of BW pricing and you take out the second quarter of “05 it is a fairly straight line progression which I am guessing would correlate with increased pricing for titanium ingot and product. The second quarter stands out because it highlights the fact that the titanium industry was reacting to the ferroti pricing. While the bulk weldable price was still well below the ferroti price, it was forced to move up quicker than I assume titanium product prices were moving. As you can see, the ferroti market finally made a major correction in the third quarter of ’05 and the bulk weldable price followed it down.

As 2005 ended and we moved in to the current year, it is apparent that the price of ingot quality titanium scrap began to be driven by competition amongst the titanium melters and not between the two competing industries. Ferrotitanium product prices and demand could no longer justify competing with the titanium industry for ingot quality scrap. Scrap supplies continued to be tight, but at this point it was more a function of scrap generation lagging behind ingot production which is a normal part of any scrap cycle.

Demand and competition for units among the titanium producers, along with increased product prices, continued to drive scrap prices up through the first half of 2006. Prices reached levels as we noted that we have not seen since those boom days of the early ‘80’s. With sponge supplies limited and scrap the only alternative demand became insatiable and prices reflected it. Scrap prices settled in at numbers well above sponge pricing.

This slide would actually make a wonderful advertising theme for the scrap industry. I can’t take credit for it. A customer actually told this to me. I had commented to him that for my entire career I have preached to melters of all scrap commodities the economic advantages of using scrap. I told him it was difficult to make that argument with scrap today trading at well above sponge prices. He responded as you see on this slide. When ingot demand outstrips sponge supply, scrap allows him to keep producing product. When sponge supply outstrips demand then scrap prices will go down giving him a cost advantage. Either way, he still needs scrap.

So where are we now and where are we going? We started to see as we got in to the summer of 2006 that scrap supply was increasing and melters were better able to source the needed units. We appear at present to be in a more balanced situation and pricing is reflecting this as scrap prices have stabilized and actually softened slightly in some
instances. While we may go through a market adjustment in both pricing and demand through the fourth quarter of the year, demand and pricing should stabilize as we get in to the first quarter of 2007. Based on predictions for continued strong demand for the titanium, I would expect demand for scrap to remain strong through 2007. As new sponge capacity comes on line and the cycle matures, we would expect scrap to reach a point of oversupply, but at this point it would appear that we are still some time from that point. This does not mean that there will not be dips along the way, as we appear to be currently experiencing, but looking at a broader picture demand should remain strong. Pricing will as it usually does, find its level.

Finally, I want to make a few observations as to where we are as an industry in relationship to scrap collection, processing, and utilization. This is the second time that I have been honored to give the scrap related speech at this conference. The first time was five or six years ago and I had made a point at that time that I did not think the titanium industry as a whole was doing a very good job of reclaiming scrap units. Supply and demand aside, it seemed that we simply let too many units leave our industry because of processing capacity issues or unsolved handling and quality issues.

As I look at the industry today, I think that we have made major strides. The continued introduction of new hearth melting capacity has brought units back in to the ti industry that were lost before. The casting industry has done a good job of reclaiming units for many non aerospace applications. I also think in response to this, the scrap industry has stepped in with major investment to increase capacity to process all forms of titanium scrap. One hope that I would have with the elevated price of scrap today is that it would encourage scrap generators to do a better job of segregating and handling their scrap in ways most conducive to recovering the material for titanium ingot production. While forgers, machiners, and fabricators are not in the business of making scrap, it is a valuable commodity that when handled properly can not only contribute to the supply stream but can have major bottom line results for everyone.

To summarize:

- The seeds for the current scrap cycle were sewn early in the decade by reduced aerospace production and increased demand for scrap from the ferrotitanium industry
- As ingot producers came back in to the market, ferroti demand affected their ability to source scrap and put pressure on scrap pricing.
- Ferroti demand and pricing retreated late in 2005. By then, a robust ingot market resulted in continued scrap tightness and price escalation.
- The scrap market appears to be heading to a balance which should sustain itself for some time.
- The titanium industry is investing heavily in melting and scrap processing technologies to better utilize scrap.

Thank you
KEYWELL VAC AIR TITANIUM Scrap Products

- TITANIUM SCRAP FOR INGOT PRODUCTION:
- TITANIUM SCRAP FOR ADDITIVE TO THE STAINLES STEEL INDUSTRY
- TITANIUM SCRAP FOR FERROTITANIUM PRODUCTION
90-6-4 Bulk Weldable
Commercial & Military Aircraft Market

![Graph showing the commercial and military aircraft market from 1996 to 2004, with bars representing the market size each year. The x-axis represents the years (1996, 1998, 2000, 2002, 2004), and the y-axis represents the market size in units.]
FeTi versus 6-4BW (2004-2006)

Price

FeTi

6-4 BW

2004 thru 3rd qtr 2006

1st qtr 2nd qtr 3rd qtr 4th qtr 1st qtr 2nd qtr 3rd qtr 4th qtr 1st qtr 2nd qtr 3rd qtr
Titanium Scrap Receipts/purchases by U.S. Titanium Ingot Melters
ADVANTAGES OF SCRAP

• When ingot demand outstrips sponge supply, scrap allows the furnace to keep melting
• When sponge supply outstrips ingot demand, scrap provides a cost advantage to the melter.
• “Either way, we still need scrap”
SUMMARY

• The seeds for the current scrap cycle were sewn early in the decade by reduced aerospace production and increased demand from the feti industry
• As ingot producers came back in to the market, feti demand effected their ability to source scrap and put pressure on pricing
• Feti pricing retreated in late 2005. By then a robust ingot market resulted in continued tight scrap supply and price escalation.
• The scrap market appears to be heading to a balance which should sustain itself for some time
• The titanium industry is investing heavily in melting and scrap processing to better utilize scrap