THE SFP CADMIUM PRESS REVIEW

23rd March 2004

Contents

SFP Metals (UK) Ltd
25 Grosvenor Street, London, W1K 4QN
Tel: +44 (0) 20 7629 8887
Fax: +44 (0) 20 7629 9622

Prepared by Roland Chavasse

SFP Research Department

Cadmium Metal Quotes

LMB Free Market 22nd March 2004

$/lb in warehouse	Low	High
Min. 99.99%	0.55	0.65
Min. 99.95%	0.45	0.55

Metal Pages 22nd March 2004

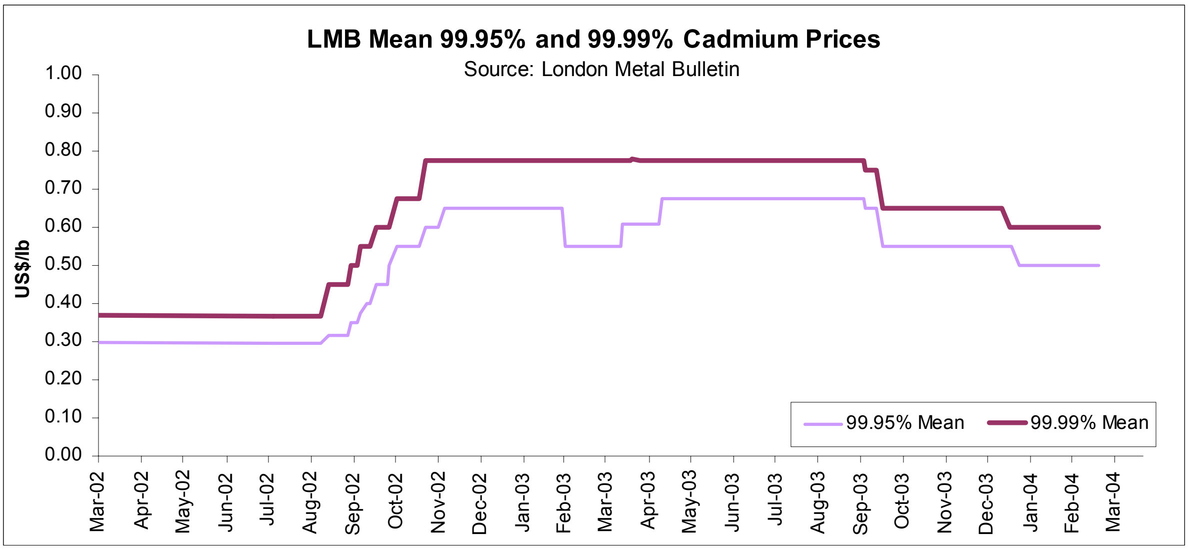
$/lb in warehouse	Low	High
Min. 99.99%	0.55	0.63
Min. 99.95%	0.50	0.55

Platt's Metals Week 22nd March 2004

$/lb in warehouse	Low	High
Free Market HG	0.65	0.75
MW NY Dealer	0.45	0.55

Ryan's Notes 22nd March 2004

$/lb in warehouse	Low	High
Min. 99.95% (Rotterdam)	0.50	0.55



WBMS World Refined Cadmium Production and Consumption 2000 – 2003

(all in MT) Year	2000	2001	2002	2003
Production	19,205.5	17,597.2	16,209.5	16,319.1
Consumption	20,591.6	18,062.1	19,240.4	19,811.0
MARKET BALANCE	-1,386.1	-464.9	-3,030.9	-3,491.9

Currencies and Commodities

Financial Times Currency Market Data: 22nd March 2004	
Euro (€) per US Dollar ($)	0.81
Pound Sterling (£) per US Dollar ($)	0.54
Japanese Yen (¥) per US Dollar ($)	106.83

The Cadmium Market Executive Summary

General Market Outlook

1) In other minor metals, traders said the market for bismuth and cadmium is quiet, but germanium is beginning to pick up after a long period of flat demand.

[Metal Bulletin 08/03/04. Read source article? – See page 6]

2) Cadmium takes the prize as the dog of the market at present. It is very quiet though 3N5 material is said to be more difficult to source than 4Ns and the differential in the grades has more or less been eroded.

[Metal Pages 30/01/04. Read source article? – See page 6]

Producers

Chelyabinsk

3) The high price of spot zinc concentrates on the global market and tight domestic supply are forcing Chelyabinsk Electrolytic Zinc Plant to cut production of the metal this year. The Russian producer will cut output to around 150,000 tonnes in 2004, a 15.4%decrease on the 177,336 mt it produced last year. Euromin, the only supplier of zinc concentrates to Chelyabinsk outside the CIS, will provide 70,000 mt of concentrate to the plant in 2004 — more than in recent years. Euromin supplied about 20-25% of the smelter's needs in each of the past two years but is likely to continue to supply greater amounts of concentrate while the domestic market is tight. Although domestic zinc production has been increasing in recent years, it is still insufficient to allow Chelyabinsk to operate at full capacity. Domestic zinc concentrate has also become more difficult to source in recent months since Urals Mining & Metals Co (UMMC) purchased Electrozink in January of this year.

[Metal Bulletin 17/03/04. Read source article? - See page 6]

4) Chelyabinsk, Russia's leading zinc producer, has switched its sights overseas for concentrate supply. Previously the main supplier to Chelyabinsk Zinc had been the Uchalinsky Ore Enrichment plant. However, earlier this year that plant's owner, Urals Mining and Metals Company, acquired the second largest Russian zinc producer, Electrotzink and announced plans to make Uchalinsky its chief concentrate provider. So now Chelyabinsk has agreed a deal which will see concentrate containing over 70,000 tonnes of zinc imported this year from Switzerland based Euromin. Zinc output at the plant, which also produces cadmium and indium as by-products, was up 6.9% in 2003 compared to the previous year.

[Metal Pages 08/03/04. Read source article? – See page 7]

Kazakhstan

5) 2003 was a mixed year for Kazakhstan in terms of metal production, the National Statistics Agency has revealed. Output of unprocessed cadmium, including scrap, waste and powders, was on the rise however, up 3% year on year to 1,351 tonnes, following a strong finish to the year. Unprocessed zinc output was up, rising 3% to 294,965 tonnes. Refined lead production fell by 17% however, to 116,006 tonnes.

[Metal Pages 06/02/04. Read source article? – See page 7]

6) Kazakhstan saw a poor first 11 months last year for metal production. Cadmium declined falling 37% year on year to 723 mt of unprocessed metal, including scrap, waste and powder, for January to November. Unprocessed zinc production for the 11 months stood at 269,832 mt, up 3%, but refined lead output fell 18% to 105,083 mt.

[Metal Pages 15/01/04. Read source article? – See page 7]

Korea Zinc Co

7) Korea Zinc, the world's largest zinc refiner, and its parent, Young Poong Corp are to raise their combined zinc output by 5.7% this year to 681,000 mt. Korea Zinc will produce 430,000 mt of zinc this year against 427,518 mt last year. Choi Keun-cheol, president of Korea Zinc, said that a reduction in China's metal exports was projected to help Korea Zinc's sales. They added that they anticipate 2004's LME zinc price to average at a level of $900 per mt.

[Metal Pages 01/03/04. Read source article? – See page 7]

Marakand Minerals

8) Construction of a US$100m mining facility in Uzbekistan should begin later this year, with the feasibility study due to be completed by June. The Khandiza non-ferrous metals deposit is being developed by Marakand Minerals, a division of Oxus Gold. The company was last year granted exclusive rights to develop and explore the site by the Uzbek government. Khandiza contains approximately 1.5m mt tonnes of zinc, 700,000 mt of lead, 180,000 mt of copper and 2,300 mt of silver. It also contains cadmium, gold, indium and selenium.

[Metal Pages 16/01/04. Read source article? – See page 8]

Pasminco

9) Troubled lead and zinc miner Pasminco today reported a widening of its loss for the first half of the year, with the strong Australian dollar offsetting higher output and prices. The loss of A$272m (US$211m) compares to the $184m loss posted in the first half of last year. The result included asset write-downs of $293m, restoration provisions of $48m and restructuring costs of $6m. The firm - soon to refloat under the new name Zinifex had reported increases in lead and zinc production for the last quarter. Other products include cadmium, copper, gold and silver.

[Metal Pages 25/02/04. Read source article? – See page 8]

Penoles

10) The net loss widened for Penoles last year, despite a strong final quarter. The Mexican polymetallic miner has posted a net loss of P153m for 2003 Losses sustained by its metals division and the exchange rate with the US dollar were cited as factors behind the increased loss. Lead and zinc output rose 3.2% and 4.5% to 130,000 mt and 218,000 mt, respectively, while copper production dropped 3% to 7,690 mt. The firm also produces bismuth, cadmium, selenium and tellurium. Earlier this year it announced plans to invest up to US$300m to bring its Milpillas copper project into operation next year.

[Metal Pages 02/03/04. Read source article? – See page 9]

Portovesme

11) Assurances relating to power supply were the major factor behind the decision to restart Portovesme in Sardinia, an Italian lead and zinc plant. It has been idle since October in the wake of high energy costs. But a meeting has now been arranged for the summer which will see a new power plant created to provide electricity to industrial users. The plant, owned by Glencore, will recall workers in June to test all machinery, with production scheduled to recommence by the end of the year. If all runs to plan, and no faults are sound in the equipment, Portovesne could resume full production early next year.

[Metal Pages 11/03/04. Read source article? – See page 9]

Ukraine

12) The Ukrainian government has confirmed its intentions to maintain its majority stake in one of its leading minor metals producers for at least the next two years. Chistye Metaly Pure Metals Plant is currently 52.7% state owned, with Rosan Doriva the next largest shareholder with 14.2%, and the State Propety Fund intends to keep its holding at just over half until at least 2006. The aim is to ensure that the plant operates steadily and carries out its planned development program. Athe plant is the Ukraine's only producer of gallium arsenide semi-conductors and also produces products containing cadmium, silicon, mercury, technical arsenic and tellurium.

[Metal Pages 26/01/04. Read source article? – See page 9]

Ural Mining and Metal Company (UGMK)

13) UGMK has completed the purchase of 75% of Electrotzink, one of Russia's top zinc producers. The firm has promised to invest RUR250m (US$8.7m) in retooling this year, and a firther RUR50m in environmental measures. Electrotzink, which has an annual capacity for 100,000 mt of zinc, in addition to its copper, cadmium, lead and nickel interests, reported revenues of RUR2.2 billion in 2002.

[Metal Pages 22/01/04. Read source article? – See page 9]

Consumers

The European Parliament

14) The European Parliament will next week consider toughening up a commission proposal on air pollution. A directive on ‘heavy metals’ emitted by industry into the atmosphere is to be debated by a full session of MEPs. Parliament’s environment committee is calling for strict limits on the total allowable levels of the heavy metals arsenic, cadmium and nickel, as well as polycyclic aromatic hydrocarbons (PAHs) in the member states. They would leave the permissible level of mercury to the discretion of member states, and let some industrial sites off the hook altogether if the sites could prove it was impossible for them to meet targets. But the commission only proposed monitoring emissions - with the exception of PAHs in some heavily polluted residential areas - and reviewing the laws in 2008.

[EUpolitix.com 05/03/04. Read source article? – See page 10]

The United Nations

15) A recent United Nations treaty ratified by 18 countries and the European Union to help combat restrictions of lead, cadmium and mercury emissions may lead to the closure of some smelters and refiners despite an ignorance of the treaty in the metals community. The heavy metal protocol is part of a UN treaty to protect air quality over Europe and came into action on December 29. The UN will govern the treaty although it will be up to individual nations as to whether they choose to enforce it. Russia has not signed up to the treaty. Hugh Morrow, senior consultant at the North American International Cadmium Association said that many of the companies across Europe already adhere to many of the regulations in the treaty and that the treaty was widely welcomed by most and pushed by “green-minded countries” such as Austria, Netherlands and the Nordic nations.

[Metal Bulletin 21/02/04. Read source article? – See page 10]

Source Press Articles

1) Indium prices up as germanium stirs to life

Metal Bulletin 08/03/04

Indium Corp of America has increased its posted price for indium to $485 per kg to reflect conditions in a tight market in which few deals are taking place. The Utica, NY-based company announced the price increase on March 4: a $110 per kg jump from the previously posted price of $375 per kg that had been in place since January 21. Market participants said the new price is roughly in line with free market prices which are between $460 and $500 per kg with more activity at the high end of that spread. However, it is becoming increasingly difficult to assess an accurate range for indium as traders said material is in short supply and few deals of any quantities are taking place. One trader said he made sales last week at $550 per kg for small quantities, typically 100-200 kg. "The market's getting scared. Anyone who has metal is letting it on to the market at a trickle, which is keeping things extremely tight," he said. Imports into the USA remain very low, with Japanese buyers taking the bulk of material coming out of Asia, the trader said. Demand for flat panel televisions, which use indium, has increased significantly in the past year. In other minor metals, traders said the market for bismuth and cadmium is quiet, but germanium is beginning to pick up after a long period of flat demand. Germanium is a key component in infrared optics, and one trader said demand from the military, in particular, had increased in recent weeks. Germanium is trading at between $260 and $290 per kg. One trader said he had recently made sales at $270 or $280 a kg. "I've had a lot of inquiries over the past few weeks. It's nothing spectacular, but there's signs of life at last," he added.

2) MARKET ROUNDUP - Quieter markets but most prices remain firm

Metal Pages 30/01/04

[...] Cadmium takes the prize as the dog of the market at present. It is very quiet though 3N5 material is said to be more difficult to source than 4Ns and the differential in the grades has more or less been eroded.

3) Chelyabinsk Zinc lowers output on high conc prices

Metal Bulletin 17/03/04

The high price of spot zinc concentrates on the global market and tight domestic supply are forcing Chelyabinsk Electrolytic Zinc Plant to cut production of the metal this year. The Russian producer will cut output to around 150,000 mt in 2004, a 15.4-% decrease on the 177,336 mt it produced last year. Euromin, the only supplier of zinc concentrates to Chelyabinsk outside the CIS, will provide 70,000 mt of concentrate to the plant in 2004 — more than in recent years. “We’ve been supplying to Chelyabinsk for years – it’s ongoing,” said a source at the UK arm of the Swiss trader. “But we’ll be supplying more into Russia than in the previous two or three years.” Euromin supplied about 20-25 % of the smelter’s needs in each of the past two years but is likely to continue to supply greater amounts of concentrate while the domestic market is tight. “We have a long-term agreement to work on the supply [of concentrate] to Chelyabinsk from outside the CIS,” said the source. “If you’re in the raw materials market, you’re always thinking at least two years ahead.” Although domestic zinc production has been increasing in recent years, it is still insufficient to allow Chelyabinsk to operate at full capacity. Domestic zinc concentrate has also become more difficult to source in recent months since Urals Mining & Metals Co (UMMC) purchased Electrozinc in January of this year. UMMC, Russia’s second largest copper producer, provides Electrozinc, the second-largest zinc producer in the country, with concentrate from its Uchalinsky concentrator, decreasing the amount of available domestic zinc concentrate and forcing Chelyabinsk onto the spot market. Spot zinc has been trading at around $1,100 per mt on the LME since February. It was available for $740 per mt in May last year.

4) New concentrates deal for Chelyabinsk

Metal Pages 08/03/04

Russia's leading zinc producer has switched its sights overseas for concentrate supply, saying that the raw material required for high quality zinc is not available domestically. Previously the main supplier to Chelyabinsk Zinc had been the Uchalinsky Ore Enrichment plant. However, earlier this year that plant's owner, Urals Mining and Metals Company (UMMC), acquired the second largest Russian zinc producer, Electrotzink and announced plans to make Uchalinsky its chief concentrate provider. So now Chelyabinsk has agreed a deal which will see concentrate containing over 70,000 tonnes of zinc imported this year from Switzerland based Euromin. The firm is a subsidiary of former Chelyabinsk majority owner Vitol, who sold its stake last year to the ChTPZ Group. Based in the Urals mountains Chelyabinsk switched to producing special high grade zinc with 99.995% metal content and its alloys last year. Imported concentrate contains 53-55% of zinc, while domestic has only 46-48%, the firm added. Zinc output at the plant, which also produces cadmium and indium as by-products, was up 6.9% in 2003 compared to the previous year.

5) Mixed year for Kazakhstan

Metal Pages 06/02/04

2003 was a mixed year for Kazakhstan in terms of metal production, the National Statistics Agency has revealed. Production of magnesium and its products, including scrap and waste, fell by 21% last year compared to 2002, with output of titanium and its products was 16% down, although no figures were given for either metal. Output of unprocessed cadmium, including scrap, waste and powders, was on the rise however, up 3% year on year to 1,351 tonnes, following a strong finish to the year. Refined copper production fell 5% to 432,401 tonnes. Blister copper output dropped 3% to 431,930 tonnes. Refined gold and silver production was also down, by 9% to 9.939 tonnes and 6% to 804.55 tonnes respectively. Unprocessed zinc output was up, rising 3% to 294,965 tonnes. Refined lead production fell by 17% however, to 116,006 tonnes. Alumina output was 2% above 2002, standing at 1.41 million tonnes.

6) Output fall for Kazakhstan

Metal Pages 15/01/04

Alumina and zinc were the exceptions for Kazakhstan in what was an otherwise poor first 11 months last year for metal production. Cadmium showed the most notable decline, falling 37% year on year to 723 of unprocessed metal, including scrap, waste and powder, for January to November. Magnesium and titanium output also saw notable drops compared to the same period 2002, falling 22% and 18% respectively, the national statistics agency has revealed. Blister copper output fell 4% to 393,175 tonnes, with refined copper production down 5% year on year to 393,972 tonnes. Unprocessed zinc production for the 11 months stood at 269,832 tonnes, up 3%, but refined lead ouput fell 18% to 105,083 tonnes. Alumina output rose 3% to 1.29 million tones. Refined gold and silver production was also down, falling 9% to 9.02 tonnes and 5% to 740.12 tonnes respectively.

7) Korea Zinc predicts higher output and profits

Metal Pages 01/03/04

Korea Zinc Co, the world's largest zinc refiner, has told shareholders that firmer zinc prices, in line with a global economic recovery will boost its output and profits this year. Korea Zinc and its parent, Young Poong Corp are to raise their combined zinc output by 5.7% this year to 681,000 tonnes, the companies said at back-to-back shareholders' meetings on Friday. "This year's business circumstances are forecast to be better than last year's, as the global economy is showing a recovery and international lead and zinc prices have been on the rise since the second half of last year," Choi Keun-cheol, president of Korea Zinc, told the meeting. A reduction in China's metal exports was also projected to help Korea Zinc's sales, he said. Korea Zinc will produce 430,000 tonnes of zinc this year against 427,518 tonnes last year, while Young Poong will produce 251,000 tonnes versus 217,000 in 2003. Korea Zinc said its net profit would rise to 67.0 billion won ($56.92 million) this year, up from last year's 42.4 billion. It sees total sales at 987.3 billion won this year against 937.8 billion in 2003. The year's business performance target was set anticipating the LME zinc price at a level of $900 per tonne. However, the market looks set to surpass this, with the three-month London Metal Exchange (LME) zinc at $1,150/$1,155 per tonne in Asian trade on Friday morning. Young Poong did not give a profit target but a company executive said profit would rise from last year's 23.3 billion won. Its sales last year were 302.8 billion won. However, there was some negative news. The two refineries, the only zinc refiners in South Korea, said record high freight rates, falling treatment charges (TCs), the appreciation of the South Korean won and high global zinc stocks could all have a negative impact on their business. Observers estimate that benchmark TCs could be around $140 a tonne, basis an LME benchmark zinc price of $1,000. This would be below last year's already low benchmark TC of $147 to $148. Meanwhile, Korea Zinc said it sold a total of 427,437 tonnes of refined zinc last year, comprising 128,956 tonnes to the local market and 298,481 for export. That compared with 405,149 tonnes sold in 2002: 129,763 to the domestic market and 275,386 for export. Young Poong sold 229,165 tonnes of refined zinc in 2003 - 59,031 in the domestic market and 170,134 tonnes for export - against 182,703 tonnes a year earlier - 59,734 domestic and 122,969 for export. Korea Zinc, also South Korea's only lead refiner, said it would produce 160,000 tonnes of lead this year, down almost 5% year-on-year due to the tight supply of lead concentrate. Korea Zinc sold 166,376 tonnes of refined lead last year, comprising 45,579 tonnes to domestic buyers and 120,797 of exports. The company sold 177,151 tonnes in 2002, 29,128 tonnes domestically and 148,023 tonnes to overseas markets. Korea Zinc also sold 4,047 tonnes of copper against 3,799 the year before. Korea Zinc aims to raise refined copper output five times to 20,000 tonnes by October this year by investing around 20 billion won.

8) $100mn facility for Uzbek deposit

Metal Pages 16/01/04

Construction of a US$100 million mining facility in Uzbekistan should begin later this year, with the feasibility study due to be completed by June. The Khandiza non-ferrous metals deposit is being developed by Marakand Minerals, a Uzbekistan based division of UK firm Oxus Gold. The company was last year granted exclusive rights to develop and explore the site by the Uzbek government. Khandiza, located in the Sariasia region of southeast Uzbekistan, contains, according to preliminary estimates, around 1.5 million tonnes of zinc, 700,000 tonnes of lead, 180,000 tonnes of copper and 2,300 tonnes of silver. It also contains some cadmium, gold, indium and selenium.

9) Pasminco loss widens

Metal Pages 25/02/04

Troubled lead and zinc miner Pasminco today reported a widening of its loss for the first half of the year, with the strong Australian dollar offsetting higher output and prices. The loss of A$272.4 million (US$210.5 million) compares to the $184.4 million loss posted in the first half of last year. The result included asset write downs of $292.9 million, restoration provisions of $48.1 million and restructuring costs of $6 million. Revenue totalled $830.5 million for the six months ended December 31st, down 6.1% year on year. The Melbourne based firm - soon to refloat under the new name Zinifex had reported increases in lead and zinc production for the last quarter. Other products include cadmium, copper, gold and silver.

10) Penoles loss widens

Metal Pages 02/03/04

The net loss widened for Penoles last year, despite a strong final quarter. The Mexican polymetallic miner has posted a net loss of P153 million (IS$13.9 million) for 2003 compared to the P111 million loss in the previous year. Losses sustained by its metals division and the exchange rate with the US dollar were cited as factors behind the increased loss. Operating profit fell 18% to P410 million. Sales were up 9% from 2002, to P12.9 billion. Fourth quarter sales of P3.78 billion represented an all time high, with operating profit soaring 218% year on year to P250 million. Lead and zinc output rose 3.2% and 4.5% to 130,000t and 218,000t, respectively, while copper production dropped 3% to 7,690t. Refined gold output fell 9.2% to approximately 30,000kg, with production of silver down 1.9% year on year to 2,400t. The firm also produces bismuth, cadmium, magnesium oxide, selenium and tellurium. Earlier this year it announced plans to invest up to US$300 million to bring its Milpillas copper project into operation next year.

11) Sardinian smelter plans restart

Metal Pages 11/03/04

Assurances relating to power supply were the major factor behind the decision to restart an Italian lead and zinc plant. Portovesme in Sardinia has been idle since October in the wake of high energy costs. But a meeting has now been arranged, to take place after June's regional election, between the government and several local companies which will see a new power plant created to provide electricity to industrial users. The plant, owned by Glencore, will recall workers in June to test all machinery, with production scheduled to recommence by the end of the year. If all runs to plan, and no faults are sound in the equipment, Portovesne could resume full production early next year. The operation consists of an electrolytic zinc refinery with a capacity of 110,000 metric tons a year, a 90,000 ton/year zinc imperial smelting furnace, a kivcet lead smelter with 85,000 tons/year capacity and a 35,000 ton/year lead plant.

12) Ukraine to keep metals stake

Metal Pages 26/01/04

The Ukranian government has confirmed its intentions to maintain its majority stake in one of its leading minor metals producers for at least the next two years. Chistye Metaly Pure Metals Plant is currently 52.7% state owned, with Rosan Doriva the next largest shareholder with 14.2%, and the State Propety Fund intends to keep its holding at just over half until at least 2006. The aim is to ensure that the plant operates steadily and carries out its planned development program. As Ukraine's only producer of gallium arsenide semi-conductors the fund consider it a strategic enterprise and had previously recommended a three year freeze on share transactions. Based in Svetlovodsk the plant also has products containing cadmium, silicon, mercury, technical arsenic and tellurium.

13) UGMK plans Zn investment

Metal Pages 22/01/04

The Ural Mining and Metal Companu (UGMK) has completed the purchase of a majority stake in one of Russia's top zinc producers. UGMK now holds 75% of Electrotzink in north Ossetia. The firm has promised to invest RUR250 million (US$8.7 million) in retooling this year, and a firther RUR50 million in environmental measures. Electrotzink, which has an annual capacity for 100,000 tonnes of zinc, in addition to its copper, cadmium, lead and nickel interests, reported revenues of RUR2.2 billion in 2002.

14) MEPs listen to heavy metal

EUpolitix.com 05/03/04

The European Parliament will next week consider toughening up a commission proposal on air pollution. A directive on so called 'heavy metals' emitted by industry into the atmosphere is to be debated by a full session of MEPs on Tuesday, with the possibility of a vote the following day. Parliament's environment committee is calling for strict limits on the total allowable levels of the heavy metals arsenic, cadmium and nickel, as well as polycyclic aromatic hydrocarbons (PAHs) in the member states. They would leave the permissible level of mercury to the discretion of member states, and let some industrial sites off the hook altogether if the sites could prove it was impossible for them to meet targets. But the commission only proposed monitoring emissions - with the exception of PAHs in some heavily polluted residential areas - and reviewing the laws in 2008. The office of the MEP responsible for seeing this proposal through parliament, Hans Kronberger, said it was very difficult to know whether or not the committee changes will make it through a plenary vote, or even if the vote will go ahead next week. Party opinions are polarised, with the Liberal party against legally binding limits, but the Greens and PSE (excepting some UK socialists) generally in favour. And when the proposal comes under the scrutiny of national governments, ministers are likely to position themselves halfway between the environment committee and the original proposal. Member states would like to see target emission levels added to the commission's directive, but do not want these to be legally binding.

15) Heavy metal emissions to be monitored by united nations' Programme

Metal Bulletin 21/02/04

A recent United Nations treaty ratified by 18 countries and the European Union to help combat restrictions of lead, cadmium and mercury emissions may lead to the closure of some smelters and refiners despite an ignorance of the treaty in the metals community. The heavy metal protocol is part of a UN treaty to protect air quality over Europe and came into action on December 29. The UN will govern the treaty although it will be up to individual nations as to whether they choose to enforce it. Companies will have to install "best technology" to stem the levels of emissions from their works, though it is so far unclear at what cost this may mean to some operations. "The industry will have to absorb the cost of implementing the protocol," said Paul Almodovar, a representative of the UN's expert group on heavy metals. He said, though, that as the treaty has only just come into force, there are still areas that remain "a little fuzzy". The ambiguity over the treaty stretches as far as the penalties handed out to those who fail to comply with the conditions set out by the UN. "The implementation committee will meet once a year to discuss how countries are complying," said Brinda Wachs, secretary to the UN's expert group on heavy metals. Most western countries have welcomed the treaty. The cost issue of applying "best technology" is more likely to affect plants in Eastern Europe, one source said. Russia has not signed up to the treaty. "Its not necessarily true but is often the case that Eastern European countries don't have the resources or capital to fit best technology," a source at the US Environmental Protection Agency said. "I don't think it will become a problem to most companies," said Hugh Morrow, senior consultant at the North American International Cadmium Assn. He added that many of the companies across Europe already adhere to many of the regulations in the treaty and that the treaty was widely welcomed by most and pushed by "green-minded countries" such as Austria, Netherlands and the Nordic nations. "Many companies already have the technology in place. Those still powered by coal and oil-fired burners will need investments," he said. Several companies contacted by MB were unaware of the legislation but insisted that they "probably have the technology in place". One Scandinavian company said: "We have traditionally used the best available technology, but until we receive documentation of the treaty I am unaware of the true rules." Other companies refused to comment on the issue until they had a full understanding of the treaty. The UN offers no financial support of compensation to companies needing to install new technology. The treaty may prompt the introduction of emissions trading among metals companies in an attempt to stay below the cap advised by the UN. "The EU may well be working on incentives for emissions trading among countries and firms in light of the heavy metal protocol," the EPA source said. The countries that have signed to the protocol are Austria, Bulgaria, Canada, Czech

Republic, Denmark, Finland, France, Germany, Luxemburg, Monaco, the Netherlands, Norway, Moldova, Romainia, Slovakia, Sweden, Switzerland, the USA and the European Union.

Disclaimer