

Specifications guide

Nonferrous

Latest update: August 2019

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DEFINITIONS OF THE TRADING LOCATIONS FOR WHICH PLATTS PUBLISHES INDEXES OR ASSESSMENTS

The following specifications guide contains the primary specifications for Platts Nonferrous metals assessments throughout the world/region. All the assessments listed here employ Platts Assessments Methodology, as published at https://www.spglobal.com/platts/plattscontent/_assets/_files/en/our-methodology/methodology-specifications/platts-assessments-methodology-guide.pdf.

These guides are designed to give Platts subscribers as much information as possible about a wide range of methodology and specification questions.

This guide is current at the time of publication. Platts may issue further updates and enhancements to this guide and will announce these to subscribers through its usual publications of record. Such updates will be included in the next version of this guide. Platts editorial staff and managers are available to provide guidance when assessment issues require clarification.

Platts nonferrous metals price assessments are timestamped; the time and location are noted below unless otherwise stated in the specification:

Asia: Singapore/Shanghai 4:30 pm

US: Washington DC 4:30 pm

Europe: London 4:30 pm

ALUMINUM CHAIN

Assessment	CODE	Mavg	Wavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
Alumina											
Alumina FOB Australia \$/mt Daily	MMWAU00	MMWAU03	MMWAU04	MMWAU16	Price assessments reflect sandy calcined Metallurgical / Smelter Grade Alumina (SGA). SGA produced in Australia meets the following typical quality parameters: SiO2 % 0.025 Max Fe2O3 % 0.025 Max TiO2 % 0.007 Max Na2O % 0.550 Max ZnO % 0.015 Max P2O5 % 0.003 Max CaO % 0.050 Max V2O5 % 0.005 Max Loss on Ignition (300-1000 degrees C) % 1.00 Max Alpha Phase (Alumina Alpha or Alpha content) % 12 Max Specific surface area m2/g 60-80 Min-Max -45 microns % 12.0 Max +45 microns % 88.0 Min ** pls note these specs apply to Platts FOB Aus, CFR China assessments	Loadings of 25,000 mt, 30,000 mt or 35,000 mt are assessed as standard.	Cargoes typically load on Handysize, Handymax or Supramax class vessels in bulk.	Kwinana, Bunbury	14-60 days	LC 30 days, BL 30 days	\$/mt
Alumina ExWorks China Yuan/mt Daily	MMXCY00	MMXCY03	MMXCY04		Smelter Grade Alumina, which meets the latest Chinese official industrial standard under code GB/T24487-2009. Aluminum Oxide (Al2O3) content of minimum 98.4%.	Min. 1,000 mt lots.	Bags of 1.5 mt each.	Ex-works Shanxi	Immediate loading (after payment), for delivery (by truck or rail) within 2-7 days.	Payment prior to loading.	Chinese Yuan/mt
Alumina CFR China \$/mt Daily	MMALZ00	MMALZ03	MMALZ04	MMALZ16	Price assessments reflect sandy calcined Metallurgical / Smelter Grade Alumina (SGA). SGA produced in Australia meets the following typical quality parameters: SiO2 % 0.025 Max Fe2O3 % 0.025 Max TiO2 % 0.007 Max Na2O % 0.550 Max ZnO % 0.015 Max P2O5 % 0.003 Max CaO % 0.050 Max V2O5 % 0.005 Max Loss on Ignition (300-1000 degrees C) % 1.00 Max Alpha Phase (Alumina Alpha or Alpha content) % 12 Max Specific surface area m2/g 60-80 Min-Max -45 microns % 12.0 Max +45 microns % 88.0 Min ** pls note these specs apply to Platts FOB Aus, CFR China assessments	25,000-35,000 mt	Cargoes typically delivered on Handysize, Handymax or Supramax class vessels in bulk.	Lianyungang	14-60 days	30 days credit	\$/mt

ALUMINUM CHAIN

Assessment	CODE	Mavg	Wavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
Alumina CFR China Yuan/ mt Daily	MMACA00	MMACA03			Price assessments reflect sandy calcined Metallurgical / Smelter Grade Alumina (SGA). SGA produced in Australia meets the following typical quality parameters: SiO2 % 0.025 Max Fe2O3 % 0.025 Max TiO2 % 0.007 Max Na2O % 0.550 Max ZnO % 0.015 Max P2O5 % 0.003 Max CaO % 0.050 Max V2O5 % 0.005 Max Loss on Ignition (300-1000 degrees C) % 1.00 Max Alpha Phase (Alumina Alpha or Alpha content) % 12 Max Specific surface area m2/g 60-80 Min-Max -45 microns % 12.0 Max +45 microns % 88.0 Min ** pls note these specs apply to Platts FOB Aus, CFR China assessments	25,000-35,000 mt	Cargoes typically delivered on Handysize, Handymax or Supramax class vessels in bulk.	Lianyungang	14-60 days	30 days credit	Chinese Yuan/ mt
Calcined Petcoke											
Calcined Pet Coke FOB US Gulf Coast \$/mt Monthly	MMXE00				Anode-grade calcined petroleum coke, suitable for aluminum smelters, with the following specification: Sulfur 2.5 – 2.7%, Vanadium max 300 ppm, Nickel max 250 ppm, Fe max 300 ppm, Silicon max 250 ppm, Calcium max 150 ppm, Sodium max 120 ppm, Ash max 0.50%, VBD 0.85-0.87 g/cc (ASTM scale)	Standard loadings of 10,000 mt to 15,000 mt. Larger loadings of up to 25,000-45,000 mt may be price normalized. Cargoes typically load on Handymax or Handysize class vessels.	NA	FOB US Gulf ports	Monthly assessment for loading within 30-60 days of publication last business day of month	"0-30 days' credit at standard. Assessments are normalized to payment 30 days after bill of lading date."	US dollars per metric ton (\$/mt)
Aluminum											
Aluminum US Market Daily	MMAAE00	MMAAE03		MMAAE16	99.7% high-grade aluminum P1020A spec	min full 45,000 lb truckloads, typical 100-1,000 mt	ingot, low-profile sow or T-bars	delivered, duty-paid Midwest consumer works	within 30 days	net-30 days	cents/lb
US Alum Transaction Premium Daily	MMAKE00	MMAKE03	AADDJ00	MMAKE16	Daily premium or discount to the London Metal Exchange cash price for spot physical 99.7% high-grade aluminum P1020A, LME spec, 99.7% Al, min, max 0.2% Si, 0.1% Fe, 0.03% zinc, 0.04% gallium, 0.03% vanadium	min full 45,000 lb truckloads, typical 100-1,000 mt	ingot, low-profile sow or T-bars	delivered, duty-paid Midwest consumer works	within 7-30 days	net-30 days	cents/lb
US Alum Trans Prem \$/ mt (conversion)	MMATP00	MMATP03	MMATP04		99.7% high-grade P1020	min full 45,000 lb truckloads, typical 100-1,000 mt	ingot, low-profile sow or T-bars	delivered, duty-paid Midwest consumer works	within 7-30 days	net-30 days	\$/mt conversion
Aluminum US Transaction Daily	MMAAF10	MMAAF02	MMAAF01	MMAAF16	99.7% high-grade P1020	min full 45,000 lb truckloads, typical 100-1,000 mt	ingot, low-profile sow or T-bars	delivered, duty-paid Midwest consumer works	within 7-30 days	net-30 days	cents/lb
US Aluminum Net-Cash Prem Daily	MMACN00	MMACN03	MMACN04	MMACN16	99.7% high-grade P1020	min full 45,000 lb truckloads, typical 100-1,000 mt	ingot, low-profile sow or T-bars	"delivered , duty-paid Midwest consumer works"	within 7-30 days	net cash	cents/lb

ALUMINUM CHAIN

Assessment	CODE	Mavg	Wavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
Aluminum P1020 US Import Duty	MMOEU00	MMOEU03	MMOEU04	MMOEU16							cents/lb
Aluminum P1020 MW US Transaction Premium (Implied Duty-Unpaid) delivered US Midwest	MMOFU00	MMOFU03	MMOFU04	MMOFU16							cents/lb
Aluminum P1020 Transaction Price (Implied Duty-Unpaid) delivered US Midwest	MMOGU00	MMOGU03	MMOGU04	MMOGU16							cents/lb
Aluminum US P1020 Duty Freight Factor	AFLSB00										cents/lb
Aluminum CIF New Orleans duty-unpaid premium daily	MMODU00	MMODU03	MMODU04	MMODU16	99.7% high-grade P1020	1,000 mt to 30,000 mt, ingot, low-profile sow normalized to 10,000 mt	or T-bars	CIF New Orleans, duty-unpaid	30-60 days	cash against documents	\$/mt
Aluminum CIF New Orleans duty-unpaid premium cents/lb (conversion)	MMNDU00	MMNDU03	MMNDU04	MMNDU16	99.7% high-grade P1020	1,000 mt to 30,000 mt, ingot, low-profile sow normalized to 10,000 mt	or T-bars	CIF New Orleans, duty-unpaid	30-60 days	cash against documents	cents/lb
Aluminum CIF NOLA-MW premium differential cents/lb	MMNOL00	MMNOL03	MMNOL04	MMNOL16	99.7% high-grade P1020	1,000 mt to 30,000 mt, ingot, low-profile sow normalized to 10,000 mt	or T-bars	CIF New Orleans, duty-unpaid	30-60 days	cash against documents	cents/lb
Aluminum 6 Month P1020 Ingot (Premium) Wkly	MMANJ04				99.7% high-grade P1020	Not specified	ingot, low-profile sow or T-bars	delivered US Midwest	6 months forward	not specified	cents/lb
Aluminum 6063 (Billet) Upcharge Weekly	MMAKC00	AAMDO00		AAMDO16	US spot upcharge over current P1020 transaction price for primary, North American General Purpose 6063 billet, to Aluminum Assn. specifications	Not specified	6063 billet, 7-8" diameter	delivered US Midwest	within 7-30 days	net-30 days	cents/lb over P1020
Aluminum Brazil Premium DDP SE Weekly	MMABS04	MMABS03		MMABS16	99.7% high-grade P1020	25-500 mt, 100 mt typical	99.7% Al purity, standard ingot, sow and T-Bars.	Delivered, duty-paid, Southeast Region - VAT taxes not included	within 30 days	net-7 to net-10 days	\$/mt
Aluminum CIF Brazil premium duty-unpaid Weekly	MMABP04	MMABP03		MMABP16	99.7% high-grade P1020	500-2,000 mt, 2,000 mt typical	99.7% Al purity, standard ingot, sow and T-Bars.	CIF, duty-unpaid, Major Brazilian ports - VAT taxes not included	within 30-60 days	net-30 days	\$/mt
Aluminum Brazil Market delivered SE Brazil Weekly	MMADB04	MMADB03		MMADB16	99.7% high-grade P1020	25-500 mt, 100 mt typical	99.7% Al purity, standard ingot, sow and T-Bars.	Delivered, duty-paid, Southeast Region - VAT taxes not included			

ALUMINUM CHAIN

Assessment	CODE	Mavg	Wavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
Aluminum Good Western premium duty paid in warehouse Rotterdam Daily	AALVE00	AALVH00	AALXJ00	AALVH16	min. 99.7% Al	Not specified	ingot	in warehouse Rotterdam	Prompt	0-30 days	\$/mt
Aluminum GW premium duty un-paid in warehouse Rotterdam Daily	AALVI00	AALVK00	AALXK00	AALVK16	min. 99.7% Al	Not specified	ingot	in warehouse Rotterdam	Prompt	0-30 days	\$/mt
Russian A7E premium duty-unpaid in warehouse Rotterdam Daily	AALVL00	AALVN00	AALXL00	AALVN16	min. 99.7% Al	Not specified	ingot	in warehouse Rotterdam	Prompt	0-30 days	\$/mt
Aluminum Russian A7E premium FOB St Petersburg	AALV000	AALVQ00	AALXM00	AALVQ16	min. 99.7% Al	Not specified	ingot	FOB St Petersburg	Prompt	0-30 days	\$/mt
Aluminum Billet DDP Italy	ABITA04	ABITA03		ABITA16	6060/6063 billet	50 mt or more	6060/6063 billet, 7-8" diameter	DDP Italy		Net-60 days	\$/mt
Aluminum Billet DDP Germany	ABGEA04	ABGEA03		ABGEA16	6060/6063 billet	50 mt or more	6060/6063 billet, 7-8" diameter	DDP Germany		Net-30 days	\$/mt
Aluminum Billet DDP Italy	ABITB04	ABITB03		ABITB16	6060/6063 billet	50 mt or more	6060/6063 billet, 7-8" diameter	DDP Italy		Net-60 days	Eur/mt
Aluminum Billet DDP Germany	ABGEB04	ABGEB03		ABGEB16	6060/6063 billet	50 mt or more	6060/6063 billet, 7-8" diameter	DDP Germany		Net-30 days	Eur/mt
CIF Japan Spot Premium (Daily)	MMANA00	AAMPD00	MMANB04	AAMPD16	P1020A LME spec, 99.7% Al min, max 0.1% Si, 0.2% Fe, 0.03% zinc, 0.04% gallium, 0.03% vanadium	250 mt or more	25 kg ingot, sows, Tbars of other sizes	Yokohama, Nagoya, Osaka ports	loading 15-60 days ahead	cash against documents	\$/mt
CIF Japan Forward Quarter Premium	AAFGA00	AAFGB00			P1020A LME spec, 99.7% Al min, max 0.1% Si, 0.2% Fe, 0.03% zinc, 0.04% gallium, 0.03% vanadium	500 mt or more	25 kg ingot, sows, Tbars of other sizes	Yokohama, Nagoya, Osaka ports	Q1 is January-March, Q2 April-June, Q3 July-September, Q4 October-December	cash against documents	\$/mt
Aluminum CIF Japan Fxd Prc Equiv (All-in)	MMJAL00	MMJAL03			All-in formula price; LME cash settlement plus spot CIF Japan premium assessment	250 mt or more	25 kg ingot, sows, Tbars of other sizes	Yokohama, Nagoya, Osaka	loading 15-60 days ahead	cash against documents	\$/mt
Aluminum CIF Jpn Qr FxdPrc Equiv (All-in)	MMJAQ00	MMJAQ03			All-in formula price; LME cash settlement plus spot CIF Japan premium assessment	500 mt or more	25 kg ingot, sows, Tbars of other sizes	Yokohama, Nagoya, Osaka	Q1 is January-March, Q2 April-June, Q3 July-September, Q4 October-December	cash against documents	\$/mt
Aluminum CFR China All-in Import Price Daily	MMBAA00	MMBAA03			All-in formula price for 99.7%Not specified		Not specified	CFR China	Spot	NA	Yuan/mt and \$/mt
Scrap											
Alum Cans Scrap Brazil Dom Prod Dlvd Mill Wkly	SB01018				Baled used beverage cans, to meet ISRI "taldon" specification	Not specified	NA	delivered Southeast Brazil	10-20 days	Not specified	cents/Real

ALUMINUM CHAIN

Assessment	CODE	Mavg	Wavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
Alum Castings Brazil Dom Prod Dlvd Mill Wkly	SB01020				New, clean, uncoated and unpainted, low copper aluminum scrap of two or more alloys. Grease and oil not to total more than 1%.	Not specified	NA	delivered Southeast Brazil	10-20 days	Not specified	cents/Real
Alum Profile Extru Brazil Dom Prod Dlvd Mill Wkly	SB01022				New, clean, uncoated aluminum castings, forgings, and extrusions of one specified alloy only and to be free from sawings, stainless steel, zinc, iron, dirt, oil, grease and other non-metallic items.	Not specified	NA	delivered Southeast Brazil	10-20 days	Not specified	cents/Real
US Alum Old Cast Twice Weekly	AAFBJ00	AAFFN00	AAMOU00	AAFFN16	less than 1% Mg and Zn, low Fe, low contamination; minimum recovery rate 92%	Full truckload	NA	delivered US Midwest	del within 30 days	Not specified	cents/lb
US Alum Old Sheet Twice Weekly	AAFBL00	AAFB000	AAMOT00	AAFB016	Non-cast aluminum items for consumption by secondary aluminum smelters to meet ISRI "taint/tabor"	Full truckload	NA	delivered US Midwest	del within 30 days	Not specified	cents/lb
US Alum Mill-Grade Mixed Low Copper Clips (MLCCs) Twice Wkly	AAFBP00	AAFBR00	AAMQ000	AAFBR16	Mixed-low copper clips able to be consumed by aluminum rolling mills, 1000, 3000, 5000, 6000 series only	Full truckload	NA	delivered US Midwest	del within 30 days	Not specified	cents/lb
US Alum Smlter-Grade MLCCs Twice Weekly	AAFBT00	AAFV000	AAFBU00	AAFV16	Mixed-low copper clips for consumption by secondary aluminum smelters, loose, bare, new, no contamination, free of 2000 and 7000 series	Full truckload	NA	delivered US Midwest	del within 30 days	Not specified	cents/lb
US Alum Turnings Twice Weekly	AAFCA00	AAFCC00	AAMON00	AAFCC16	Machine and tooling scrap for consumption by secondary aluminum smelters; high grade, clean and dry	Full truckload	NA	delivered US Midwest	del within 30 days	Not specified	cents/lb
US Low Grd Auto Shreds Twice Weekly	AASS000	AASS003	AASS004	AASS016	Auto shreds generated through an eddy currentbased or hand separation process, containing at least 90% metallics and not more than 4% zinc	Full truckload	NA	delivered US Midwest	del within 30 days	Not specified	cents/lb
US Hi Grd Auto Shreds Twice Weekly	AASSP00	AASSP03	AASSP04	AASSP16	"Auto shreds generated through a heavy mediabased separation process, containing at least 98% metallics and not more than 1% free zinc, to include material from the following suppliers: Huron Valley, Newell, Ferrous Processing/SLC Recycling and Fort Wayne OmniSource Corp"	Full truckload	NA	delivered US Midwest	del within 30 days	Not specified	cents/lb
US Alum UBCs Weekly	AAFCD00	AAMDC00		AAMDC16	Baled used beverage cans, to meet ISRI "taldon" specification	Full truckload	NA	delivered US Midwest	del within 30 days	Not specified	cents/lb
US Aluminum 6063 New Bare Extrusion Scrap Discount Wkly	AAFCE00	AAMCZ00	NA	AAMCZ16	New bare 6063 extrusion scrap	Full truckload	NA	delivered US Midwest	del within 30 days	Net-30 days	cents/lb as a discount to P1020
US Aluminum 6063 New Bare Extrusion Scrap Daily	AAFCE00	AAXVZ03	AAXVZ04		New bare 6063 extrusion scrap all-in value daily	Full truckload	NA	delivered US Midwest	del within 30 days	Net-30 days	cents/lb
US Aluminum 6022 New Bare Scrap Discount Weekly	AAXVM04	AAXVM03	NA	AAXVM16	New bare 6022 aluminum sheet scrap	Full truckload	Minimum thickness of 0.050 inches.Free of punchings less then half-inch in diameter	delivered US Midwest	del within 30 days	Net-30 days	cents/lb as a discount to P1020
US Aluminum 6022 New Bare Scrap Daily	AAXVM00	AAXVX03	AAXVX04		New bare 6022 aluminum sheet scrap all-in value	Full truckload	Minimum thickness of 0.050 inches.Free of punchings less then half-inch in diameter	delivered US Midwest	del within 30 days	Net-30 days	cents/lb

ALUMINUM CHAIN

Assessment	CODE	Mavg	Wavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
US Aluminum 5052 New Bare Scrap Discount Weekly	ABSDB04	ABSDB03	NA	ABSDB16	New bare 5052 aluminum sheet scrap	Full truckload	Minimum thickness 0.015 inches (.38 mm). Free of punchings less than 1/2" (1.27 cm) in size.	delivered US Midwest	del within 30 days	Net-30 days	cents/lb
US Aluminum 5052 New Bare Scrap Daily	ABSDA00	ABSDA03	ABSDA04		New bare 5052 aluminum sheet scrap	Full truckload	Minimum thickness 0.015 inches (.38 mm). Free of punchings less than 1/2" (1.27 cm) in size.	delivered US Midwest	del within 30 days	Net-30 days	cents/lb
US Aluminum Painted Siding Wkly	AASNW02	AASNW03		AASNW16	"Siding consisting of clean, low-copper aluminum siding scrap, painted one or two sides, free of plastic coating, iron, dirt, corrosion, fiber, foam or fiberglass backing or other non-metallic items"	Full truckload	NA	delivered US Midwest	del within 30 days	Not specified	cents/lb
Aluminum old cast delivered NE Mexico pesos/kg	AAXXA04	AAXXA03		AAXXA16	Old cast aluminum scrap with up to 5% contamination, minimal 88% recovery	Full truckload, typical volume 20 mt	NA	delivered Northeast Mexico	del within 30 days	Net-30 days	pesos/kg
Aluminum old cast delivered NE Mexico cents/lb conversion	AAXUA04	AAXUA03		AAXUA16	Old cast aluminum scrap with up to 5% contamination, minimal 88% recovery	Full truckload, typical volume 20 mt	NA	delivered Northeast Mexico	del within 30 days	Net-30 days	cents/lb
Aluminum old sheet delivered NE Mexico pesos/kg	AAXXB04	AAXXB03		AAXXB16	Non-cast aluminum scrap items for consumption by secondary aluminum smelters to meet ISRI "taint/tabor" grade, containing 2-3% Fe	Full truckload, typical volume 20 mt	NA	delivered Northeast Mexico	del within 30 days	Net-30 days	pesos/kg
Aluminum old sheet delivered NE Mexico cents/lb conversion	AAXUB04	AAXUB03		AAXUB16	Non-cast aluminum scrap items for consumption by secondary aluminum smelters to meet ISRI "taint/tabor" grade, containing 2-3% Fe	Full truckload, typical volume 20 mt	NA	delivered Northeast Mexico	del within 30 days	Net-30 days	cents/lb
Aluminum UBCs delivered NE Mexico pesos/kg	AAXXC04	AAXXC03		AAXXC16	Baled used beverage cans, to meet ISRI "taldon" specification.	Full truckload, typical volume 20 mt	NA	delivered Northeast Mexico	del within 30 days	Net-30 days	pesos/kg
Aluminum UBCs delivered NE Mexico cents/lb conversion	AAXUC04	AAXUC03		AAXUC16	Baled used beverage cans, to meet ISRI "taldon" specification.	Full truckload, typical volume 20 mt	NA	delivered Northeast Mexico	del within 30 days	Net-30 days	cents/lb
Aluminum 6063 new bare scrap delivered NE Mexico pesos/kg	AAXXD04	AAXXD03		AAXXD16	6063 new bare scrap, free of paint, may be anodized -- may include press scrap with butts	Full truckload, typical volume 20 mt	NA	delivered Northeast Mexico	del within 30 days	Net-30 days	pesos/kg
Aluminum 6063 new bare scrap del NE Mexico cents/lb conversion	AAXUD04	AAXUD03		AAXUD16	6063 new bare scrap, free of paint, may be anodized -- may include press scrap with butts	Full truckload, typical volume 20 mt	NA	delivered Northeast Mexico	del within 30 days	Net-30 days	cents/lb
Secondary Alloys											
Aluminum A-380 Twice Weekly	MMAAD00	MMAAD02	MMAAD01	MMAAD16	8-9.5% Si, 1% Fe, 3-4% Cu, 0.5% Mn, 0.1% Mg, 0.5% Ni, 2.9% Zn, and 0.35%	Full truckload	NA	delivered US Midwest	Within 30 days	net-30 to net-60 days	cents/lb
Aluminum A-319 alloy Twice Weekly	MMAAC00	MMAAC02	MMAAC01	MMAAC16	5.5-6.5% Si; 0.8% Fe, 3.0-4.0% Cu; 0.50% Mn, 0.10% Mg, 0.35% Ni; 1.0% Zn, 0.25% Ti	Full truckload	NA	delivered US Midwest	Within 30 days	net-30 to net-60 days	cents/lb

ALUMINUM CHAIN

Assessment	CODE	Mavg	Wavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
Aluminum 356 alloy Twice Weekly	MMAAB00	MMAAB02	MMAAB01	MMAAB16	6.5-7.56% Si; 0.50% Fe; 0.25% Cu; 0.35% Mn; 0.25-0.45% Mg; 0.35% Zn; 0.25 Ti	Full truckload	NA	delivered US Midwest	Within 30 days	net-30 to net-60 days	cents/lb
Aluminum F132 alloy Twice Weekly	MMAAA00	MMAAA02	MMAAA01	MMAAA16	8.5-10.0% Si; 0.6% Fe; 2.0-4.0% Cu; 0.20 Mn; 0.9-1.3% Mg; 0.10% Ni; 0.10% Zn; 0.20% Ti	Full truckload	NA	delivered US Midwest	Within 30 days	net-30 to net-60 days	cents/lb
Aluminum B390 alloy Twice Weekly	FAALB00	FAALB03	FAALB04		16-18% Si, 1.3% max Fe, 4.0-5.0% Cu, 0.50% Mn, 0.45-0.65% Mg, 0.10% Ni, 1.4% Zn and 0.20% Ti	Full truckload	NA	delivered US Midwest	Within 30 days	net-30 to net-60 days	cents/lb
MW US 413 alloy Twice Weekly	MMWUS00	MMWUS03	MMWUS04	MMWUS16	A-413.1-Si 11-13%, Fe 1% max, Cu 0.6% max, Mn 0.35%, Mg 0.1%, Ni 0.5%, Zn 0.5%, and Sn 0.15%.	Full truckload	NA	Delivered US Midwest buyer works	Within 30 days	net-30 to net-60 days	cents/lb
Europe Alum Alloy 226 Dlvd Wkly	AALVT00	AALVU00		AALVU16	226 LME Grade - DIN standard 1725	Full truckload	NA	delivered works	Not specified	0-30 days	Eur/mt
Alum Alloy 231 DDP Germany	ABLVT04	ABLVT03		ABLVT16	231 LME Grade - DIN standard 1706	Full truckload	NA	delivered works Germany	prompt	Net-30 days	Eur/mt
Aluminum ADC12 Ex- Wks China \$/mt Weekly	AAVSI00	AAVSI03			JIS standard - 9.6-12% Si, 0.9% Fe, 1.5-3.5% Cu, 0.5% Mn, 0.3% Mg, 0.5% Ni, 1% Zn, and 0.2% Sn.	Not specified	NA	Ex-works China	Not specified	Not specified	\$/mt
Alum ADC12 Ex-Wks China Yuan/mt Weekly	AAVSI02	AAVSI13			JIS standard - 9.6-12% Si, 0.9% Fe, 1.5-3.5% Cu, 0.5% Mn, 0.3% Mg, 0.5% Ni, 1% Zn, and 0.2% Sn.	Not specified	NA	Ex-works China	Not specified	Not specified	Yuan/mt
Aluminum ADC12 FOB China \$/mt Weekly	AAVSJ00	AAVSJ03			JIS standard - 9.6-12% Si, 0.9% Fe, 1.5-3.5% Cu, 0.5% Mn, 0.3% Mg, 0.5% Ni, 1% Zn, and 0.2% Sn.	Not specified	NA	FOB China - Shanghai, Tianjin	Not specified	Not specified	\$/mt

Aluminum Chain

Alumina

Alumina FOB Australia: Platts launched on August 16, 2010, daily spot market price assessments of sandy calcined Metallurgical/Smelter Grade Alumina (SGA) under the benchmark name Platts Alumina Index FOB Australia (PAX Australia). Platts publishes the daily spot market price for alumina (aluminum oxide), reflecting the price at which a cargo could be traded on an FOB Australia basis, for market values prevailing at the close of Asian markets, typically at 5:30 pm Singapore time (0930 GMT). These assessed values are based on confirmed spot cargo transactions, or the tradeable price falling between firm cargo bids/offers, or in the absence of liquidity, where spot market transactions would have been concluded for the benchmark grade. Spot price bids/offers or

trades basis CFR China, Middle East or Russia may be netted back to FOB Australia basis using assessed spot freight rates for dry bulk carriers on the day of assessment, for comparison with spot prices (bids/offers or trades) basis FOB Australia. For netback calculations from CFR destinations, the appropriate Handysize, Handymax or Supramax freight costs are taken into consideration.

Spot price bids/offers or trades basis other FOB origins, such as India, Brazil or Jamaica, are not taken directly into account when assessing prices basis FOB Australia. However, they are actively considered for market consistency with prices discovered or implied basis FOB Australia.

Platts spot market price assessments also take into account fundamentals of demand/supply of alumina in Australia and key consumer markets.

Alumina CFR China: Platts launched on August 16, 2010, daily spot market price assessments of sandy calcined Metallurgical/Smelter Grade Alumina (SGA), under the name Platts Alumina Index CFR China (PAX China Import). Platts has since 2004 published weekly price assessments for alumina for delivery into China, under the name Alumina C&F China.

Alumina EXW (ex-works) China: Platts launched on August 16, 2010, daily spot market price assessments of domestic Chinese Smelter Grade Alumina under the name Platts Alumina EXW China (PAX China Domestic). The assessment is for minimum 1,000 mt lots, in bags of 1.5 mt each, assessed basis ex-works Shanxi province, for immediate loading (after payment), for delivery (by truck or rail) within 2-7 days. Assessed daily in Chinese yuan/mt with a conversion to dollars/mt. Platts will normalize all price information gathered from other major alumina producing Chinese provinces - Henan, Shandong,

Guangxi, and Guizhou – back to an ex-works Shanxi basis. Prior to December 1, 2015, the assessment was basis ex-works Henan province.

Calcined Petcoke

Calcined Petroleum Coke FOB US Gulf Coast: Platts publishes the monthly price assessment for anode grade calcined petroleum coke (CPC), suitable for aluminum smelters, reflecting the price at which a cargo could be traded on an FOB Gulf Coast/Mississippi River region basis at the close of the assessment period on the day of publishing. The assessment is based on confirmed spot transactions, firm bids and offers, or in the absence of liquidity, where spot transactions would conclude for the benchmark grade. Negotiations on current-quarter or half-year contracts may be taken into account for trend purposes. Deals and bids/offers must be deemed to be repeatable between typical counterparties.

The price assessment reflects anode-grade calcined petroleum coke suitable for aluminum smelters, in sponge form, excluding shot coke, normalized to the following typical parameters reflecting CPC produced in the US Gulf Coast region: Sulfur 2.5 – 2.7%, vanadium max 300 ppm, nickel max 250 ppm, Fe max 300 ppm, silicon max 250 ppm, calcium max 150 ppm, sodium max 120 ppm, ash max 0.50%, VBD 0.85-0.87 g/cc, ASTM scale.

The Platts calcined petroleum coke FOB US Gulf assessment is published monthly on the last business day of the month, in a narrow price range (high-low and midpoint), reflecting cargo values loading 30-60 days forward.

Platts' global market analysis will also take into account spot bids/offers or trades basis CFR Europe, CFR Canada, CFR Middle East, CFR Russia or FOB US West Coast. These will be analyzed to determine whether netting back to a US Gulf Coast basis is possible given the specific ports, taking into consideration the appropriate Handymax or Handysize freight costs.

Platts' assessments may also take into account demand/supply fundamentals for green petroleum coke, calcined petroleum coke and aluminum in key consumer markets. FOB China prices may also be monitored for trend purposes.

Aluminum

MW US Market: Daily all-inclusive or "all-in" price for spot physical 99.7% high-grade P1020A aluminum, delivered US consumer works, arrival within 7-30 days from date of publication, net-30-day payment terms. Expressed in cents/lb, the price assessment began in 1972 and pre-dates the LME. The assessment takes into account all P1020 trading data obtained through the Platts daily survey of P1020 activity, giving priority to any spot physical all-in transactions, bids or offers. In the absence of all-in market information, Platts collects a wide range of other relevant market data, including, but not limited to, prevailing exchange-traded values plus applicable premiums for delivery to a typical-freight US Midwest aluminum user. These values take into account exchange prices at 2 pm US EST, to capture values more closely aligning with the timing of US deals. The assessment is normalized to delivery in the middle of the Platts typical window of 7-30 days using the prevailing Cash to M3 or month-to-month structure. The assessment includes business for any origin 99.7% P1020 ingot, low-profile sow or T-bars, basis delivery US Midwest. Volumes must be a minimum full 45,000 lb (20 mt) truckload or multiples thereof to be included in the assessment. The typical order size for price normalization is 100-1,000 mt, and price data for volumes that are smaller or larger than the typical order size may be normalized to the standard. The daily assessment reflects delivery to a typical-freight consumer in a broad US Midwest region via truck or rail. Trades, bids and offers that are reported to Platts as FOB, FCA or for non-Midwest locations may be normalized for assessment purposes. Prior to May 1, 2015, the assessment was a weekly range, and the monthly average was calculated using the low end of the weekly ranges.

MW US Transaction Premium: Daily premium or discount to

the London Metal Exchange cash price for spot physical 99.7% high-grade aluminum, delivered, duty-paid US consumer works, arrival within 7-30 days from date of publication, net-30-day terms. Assessment is expressed in cents per pound but also available on a converted dollars/mt basis. Premium or discount is determined based on physical spot deals, bids and offers reported through a daily survey of spot buyers and sellers, using a representative sample of producers, traders and different types of end users (sheet mills, remelt billet makers, extruders, rod mills, etc). Includes business for LME-deliverable, any origin 99.7% P1020 ingot, low-profile sow or T-bars, basis delivery US Midwest. Volumes must be a minimum full 45,000 lb (20 mt) truckload or multiples thereof to be included in the assessment. The typical order size for price normalization is 100-1,000 mt, and price data for volumes that are smaller or larger than the typical order size may be normalized to the standard. The daily assessment reflects delivery to a typical-freight consumer in a broad US Midwest region via truck or rail. Trades, bids and offers that are reported to Platts as FOB, FCA, or for non-Midwest locations may be normalized for assessment purpose. In addition, Platts uses a matrix of typical delivery locations throughout North America and categorizes these locations as "average," "close," or "extra" freights based on market input. The "close" or "extra" freight locations are normalized to "average" based on differential values determined by Platts, which are adjusted on the back of feedback from active market participants on typical locational discounts or extras. The average – or basis – locations include: Anderson, Lafayette, and Warrick, Indiana; Berea, Russellville and Shelbyville, Kentucky;; St. Louis, Missouri; Carthage, Huntington and New Johnsonville, Tennessee; Manitowoc, Wisconsin; and Ravenswood, West Virginia. Assessment reflects net-30-day payment terms from delivery (net-cash, net-5 and net-10 are normalized using typical LIBOR-plus rates or prevailing net-cash versus net-30 spreads, based on a survey). Deals that require a specific shape or chemistry (i.e., T-bars only, no lithium) may be normalized to the stated standard specification. In the absence of repeatable concluded spot deals where a premium/discount is negotiated, the assessment takes into account firm bids and offers.

Changes in the spreads on formula deals, or the premiums and discounts for other grades of aluminum basis Transaction premium, are considered for trend purposes. "Good until cancel" (GTC) deals reflecting a fixed price with non-negotiated premiums, or additional orders given as part of a frame contract, are not considered in the assessment but may be monitored for trend purposes. The assessment reflects the most widely tradeable and repeatable premium or discount value prevailing at the close of US markets, typically at 4:30pm US Eastern time. On the last business day of the month, the assessment closes at 1pm US East Coast time. The assessment follows the London holiday schedule.

MW US Transaction: Daily London Metal Exchange high-grade aluminum cash settlement price, converted into cents per pound, adjusted by US free-market premium or discount for prompt delivery Midwest (arrival within 7-30 days from date of publication). (See specification for US Transaction Premium). Premium determined based on physical business reported by a daily survey of major buyers and sellers, using a representative survey sample of producers, traders and different types of end users. Includes business for LME-deliverable, any-origin 99.7% North American P1020 ingot, low-profile sow or T-bars, meeting LME specifications, basis delivery US Midwest. Volumes are minimum full 45,000 lb truckloads, typical quantities 100-1,000 mt. MW US Net-cash premium – Daily premium or discount to the London Metal Exchange cash price for spot physical 99.7% high-grade aluminum, delivered, duty-paid US consumer works, arrival within 7-30 days from date of publication, net-cash payment terms, normalized to a broad Midwest region. The premium is determined based on a survey of producers, traders and end users to determine the prevailing spread between net-cash and net-30 terms, on a cents/lb basis. All other specifications are the same as for the US Transaction Premium (see separate reference).

P1020 US Import Duty: (\$/mt: MMOHU00; cts/lb: MMOEU00) This is a daily value calculated using the following method – deducting a factor equal to freights (land and sea) and handling

charges from the US Midwest Transaction assessments to assess an implied FOB value. This FOB value is divided by 1.1, creating an implied duty-unpaid FOB value. This implied value is then multiplied by 0.1 to generate the "P1020 US Import Duty."

P1020 MW US Transaction Premium (Implied Duty-Unpaid) delivered US Midwest: (\$/mt: MMOIU00; cts/lb: MMOFU00) This is a daily value calculated using the following method – the "P1020 US Import Duty" is deducted from the "MW US Transaction Premium."

P1020 Transaction Price (Implied Duty-Unpaid) delivered US Midwest: (\$/mt: MMOJU00; cts/lb: MMOGU00) This is a daily value calculated using the following method – the "P1020 US Import Duty" is deducted from the "MW US Transaction price."

US P1020 Duty Freight Factor: (\$/mt: AFLSA00; cts/lb: AFLSB00) This is a daily assessment determined by adding together inland US freight, sea freight and relevant loading and unloading charges to net back to a FOB Canada basis from a delivered US Midwest basis.

CIF New Orleans duty-unpaid premium: Daily assessment of the premium or discount, in dollars/mt, to the LME price for P1020 grade aluminum on a CIF New Orleans basis, free out, duty-unpaid, taking into account breakbulk cargoes, in spot cargo sizes of 1,000 mt to 30,000 mt, normalized to 10,000 mt for price assessment purposes, for arrival 30-60 days from assessment date, payment terms cash against documents (CAD). The CIF New Orleans assessment considers market inputs on a CIF Mobile or CIF Houston basis for normalization to CIF New Orleans basis. Platts is also publishing a cents/lb conversion and a derived NOLA to the Midwest Transaction Premium (MMAKE00) differential.

US Six-Months P1020: Weekly US free-market premium over LME for North American 99.7% ingot delivered Midwest for a period in time six months forward, based on a survey of quotes and sales during the current week for six months from that date.

Reflects both physical and financial swaps business done by producers, traders and consumers.

US Spot 6063 Billet Upcharge: Weekly US spot upcharge assessment over current P1020 Transaction price for primary or remelt North American general purpose 6063 billet, to Aluminum Assn. specifications, 7-inch or 8-inch diameter, basis delivery US Midwest, net-30 day payment terms. The range reflects the majority of spot (non-contract) business based on a survey of primary and remelt producers, traders and extruders.

Europe-Good Western Duty-paid Premium Rotterdam: Duty-paid daily assessed \$/mt premium over LME cash for Western-origin 99.7% ingot meeting LME high grade specifications. In warehouse Rotterdam, 0-30 days terms, prompt delivery. Based on a survey of producers, traders and consumers (extruders, rolling mills). Began being assessed daily September 2003.

Europe-Good Western Duty-Unpaid Premium Rotterdam: Daily assessed \$/mt premium over LME cash for 99.7% ingot meeting LME high grade specifications. In warehouse Rotterdam, 0-30 day terms, prompt delivery, on a duty-unpaid basis. Based on a survey of producers, traders and consumers (extruders, rolling mills). Assessed daily as of September 2003.

Europe-Russian A7E Duty-Unpaid Premium Rotterdam: – Daily assessed \$/mt premium over LME cash for 99.7% Russian origin ingot in warehouse Rotterdam, 0-30 day terms, prompt delivery, on a duty-unpaid basis. Based on a survey of producers, traders and consumers of aluminum. Assessed daily as of September 2003.

Europe-Russian A7E FOB Premium St. Petersburg: – Daily assessed \$/mt premium over LME cash for 99.7% Russian origin ingot on a FOB St. Petersburg basis, 0-30 day terms, prompt delivery. Based on a survey of producers, traders and consumers of aluminum. Assessed daily as of September 2003.

Aluminum Billet 6060/6063 DDP Germany: Weekly assessment

of the physical spot market price for min 99.7% Aluminum as 6060/6063 billet with a diameter of 7-inch or 8-inch, basis delivered duty paid Germany for minimum 50mt shipments. Payment terms are 0-30 days with delivery within 60 days, \$/mt. Other qualities are considered and normalized back to Platts base standard specifications, subject to prevailing market differentials. Aluminum Billet DDP Germany is assessed every week on Fridays or closest prior business day.

Aluminum Billet 6060/6063 DDP Italy: Weekly assessment of the physical spot market price for min 99.7% Aluminum as 6060/6063 billet with a diameter of 7-inch or 8-inch, basis delivered duty paid Italy for minimum 50mt shipments. Payment terms are 0-60 days with delivery within 60 days, \$/mt. Other qualities are considered and normalized back to Platts base standard specifications, subject to prevailing market differentials. Aluminum Billet DDP Italy is assessed every week on Fridays or closest prior business day.

CIF Japan Spot Premium: Daily assessment of the spot premium or discount to the London Metal Exchange cash settlement price for high-grade aluminum. Minimum 99.7% primary aluminum meeting LME P1020A chemical specifications, CIF main Japanese ports of Yokohama, Nagoya or Osaka, all origins, except excluding Iran, India, Egypt and LME warehouses. The assessment is expressed in a narrow price range reflecting the majority of business or spot bids/offers for ingot, T-bars and sows, minimum volumes of 250 mt, cash within 3 days of bill of lading, or cash against documents. Cargo leaves ports 15-60 days after the date of assessment. Platts surveys market sources, gathering information from a representative sample of traders, consumers, producers and brokers deemed reliable and active in the spot market. Platts contacts sources based in Japan, Australia, Russia, Europe, the Middle East and other Asian countries. In order to ensure the underlying structure is accounted for when assessing the CIF Japan Spot Premium, Platts normalizes all indications to a base month. The base month is the calendar month plus one (M+1). For example, Platts will reflect March as the base month throughout February.

CIF Japan Forward Quarter Premium: Premium or discount to the LME price at time of shipment for minimum 99.7% primary aluminum meeting the LME P1020A chemical specifications, CIF main Japanese ports of Yokohama, Nagoya or Osaka, origins excluding Iran, India, Egypt and LME warehouses. The premium range reflects the majority of concluded quarterly contracts for minimum 500 mt/month volumes, in ingot, T-bars or sow form, cash within 3 days of bill of lading, or cash against documents. Cargoes leave ports during the quarter for which the contract has been negotiated. Platts surveys market sources, gathering information from a representative sample of traders, consumers, producers and brokers deemed reliable and active in the market. The final assessment range is published when a sufficient number of transactions have been concluded to reflect a repeatable contract assessment value for the quarter in question. This is often the case by the first business day of the quarter. Should contract negotiations extend beyond the first business day of the quarter, no quarterly assessment value would be published until a sufficient number of transactions have been concluded.

CFR China All-in Import Price: Automated daily formula price reflecting the theoretical import value for importing P1020 aluminum into China. The calculation is the current LME cash settlement price plus current midpoint of the Platts CIF Japan Spot Premium (MMANA00) x Yuan exchange rate x Value Added Tax + China port charges. This assessment enables comparison with the China domestic Shanghai Futures Exchange current front month price, as well as the various domestic spot prices for the reference spread.

Aluminum CIF Brazil premium duty unpaid: Weekly assessment of the premium or discount to the LME cash settlement price for spot physical high-grade aluminum P1020A, 99.7% Al purity, standard ingot, sow and T-Bars. Assessed once per week, typically on Friday, in dollars per mt, the value will reflect the typical transactable value as of week's end, based on a weekly survey of producers, traders and consumers of P1020 active in the spot market. Assessment basis CIF Brazil (to include major

ports Santos/SP, Itajai/SC, Itaguai/RJ and Sao Francisco do Sul/SC), duty unpaid, VAT not included (ICMS, PIS/Cofins and IPI), delivery within 30-60 days, typical volumes up to 2,000 mt, payment net-30 days. Prices for volumes, grade, shape or payment terms that differ from the standard specification may be normalized to the typical range, FOB values from exporting regions may also be considered in the assessment process. Platts monitors the market throughout the week and considers in its assessments all of the information provided regarding deals, bids and offers in the market, reflecting in its assessment the tradeable value as of Friday.

Aluminum Premium delivered SE Brazil: Weekly assessment of the premium or discount to the LME cash settlement price for spot physical high-grade aluminum P1020A, 99.7% Al purity, standard ingot, sow and T-Bars. Assessed once per week, typically on Friday, in dollars per mt, the value will reflect the typical transactable value as of week's end, based on a weekly survey of producers, traders and consumers of P1020 active in the spot market. Delivery within 30 days to customers' works in the Southeast region of Brazil (including Sao Paulo, Rio de Janeiro, Minas Gerais and Espirito do Santo), duty-paid, VAT not included (ICMS, PIS/Cofins and IPI). Payment terms net-7 to net-10 days, based on a typical order size of 100 mt. Other shapes, grades, locations, delivery periods, volumes and payment terms may be normalized to this standard specification. Platts monitors the market throughout the week and considers in its assessments all of the information provided regarding deals, bids and offers in the market, reflecting in its assessment the tradeable value as of Friday.

Aluminum Brazil Market, delivered SE Brazil: Weekly assessment of the all-in delivered value of spot physical high-grade aluminum P1020A, 99.7% Al purity, standard ingot, sow and T-Bars. Assessed once per week, typically on Friday, in dollars per mt, reflecting the typical transactable value as of week's end, based on a weekly survey of producers, traders and consumers of P1020 active in the spot market. Delivery within 30 days to customers' works in the Southeast region of Brazil

(including Sao Paulo, Rio de Janeiro, Minas Gerais and Espirito do Santo), duty-paid, VAT not included (ICMS, PIS/Cofins and IPI). Payment terms net-7 to net-10 days, full-truckload, 25 mt. Other shapes, grades, delivery periods, locations, volumes and payment terms may be normalized to this standard specification. Platts monitors the market throughout the week and considers in its assessments all of the information provided regarding deals, bids and offers in the market, reflecting in its assessment the tradeable value as of Friday.

Scrap

US Old Cast: Aluminum castings for consumption by secondary aluminum smelters, crushed cast, shreddable, less than 1% Mg and Zn, low Fe, low contamination; minimum recovery rate 92%; cents/lb, within 30-day delivery US Midwest. Assessed twice per week, usually on Mondays and Thursdays, through a survey of secondary aluminum smelters and scrap dealers. Price started in July 2000.

US Old Sheet: Non-cast aluminum items for consumption by secondary aluminum smelters to meet ISRI "taint/tabor" specification; cents/lb, 30-day delivery US Midwest. Assessed twice per week, usually on Mondays and Thursdays, through a survey of secondary aluminum smelters and scrap dealers. Price started in July 2000.

US Mill-grade MLCCs: Mixed-low copper clips able to be consumed by aluminum rolling mills, 1000, 3000, 5000, 6000 series only; cents/lb, 30-day delivery US Midwest: Assessed twice per week, usually on Mondays and Thursdays, through a survey of secondary aluminum smelters, scrap dealers and rolling mills. Price started in July 2000.

US Smelter-grade MLCCs: Mixed-low copper clips for consumption by secondary aluminum smelters, loose, bare, new, no contamination, free of 2000 and 7000 series; cents/lb, 30-day delivery to US Midwest. Assessed twice per week, usually on Mondays and Thursdays, through a survey of secondary

aluminum smelters and scrap dealers. Price started in July 2000.

US Turnings: Machine and tooling scrap for consumption by secondary aluminum smelters; high grade, clean and dry; cents/lb, 30-day delivery US Midwest. Assessed twice per week, usually on Mondays and Thursdays, through a survey of secondary aluminum smelters and scrap dealers. Price started July 2000.

US UBCs: Baled used beverage cans, to meet ISRI "taldon" specification; cents/lb, delivered US Midwest. Assessed once a week, usually on Thursdays, reflecting the range of spot business concluded by consumers and mid-to-large scrap dealer/consolidators/brokers. Business that is reported as non-Midwest or FOT (picked up) is adjusted to reflect average US Midwest delivery. Price started July 2000.

US 6063 New Bare Extrusion Scrap: Weekly price assessment for aluminum scrap consisting of one alloy (typically 6063). Material may contain "butt ends" from the extrusion process but must be free of any foreign contamination. Anodized material is acceptable, but free of oil, film, coating or paint, and free of stainless, iron or other metallics. Price data for straight 6063 press scrap or 6063 scrap containing another alloy, paint or oil may be normalized to the stated specification. Price assessment normalized to basis delivered US Midwest, within 30 days, net-30 day payment terms, assessed in cents/lb as a discount to that day's Platts Transaction price assessment and also published as a daily calculated outright value using the last-updated weekly spread. Assessed once per week on Thursdays or closest business day through a survey of scrap dealers, aluminum producers, aluminum mills, remelt billet makers, extruders, secondary smelters and others active in 6063 spot trading, taking into account reported bids, offers and deals reported as discount spreads or outright "all-in" price values. Prior to January 7, 2016, the assessment was for new 6063 press scrap with butts included.

US 6022 New Bare Scrap: Weekly assessment of the price for

new, bare aluminum sheet scrap meeting 6022 specification, to be assessed weekly as a discount to Platts Aluminum Transaction price on the day of assessment, and also published as a calculated outright value, weekly on Thursdays or closest business day in the event of holidays. The assessment will be for 6022 sheet scrap with a minimum thickness of 0.050 inches. Material to be free of hair wire, wire screen, dirt and other non-metallic items, free of punchings less than half-inch in diameter. Grease and oil not to total more than 1%. Assessed in cents per pound, taking into account spreads and outright values, normalized to spot business shipping within 30 days, delivered Midwest basis, net-30 day payment terms. Based on a survey of scrap dealers, aluminum mills, remelt billet makers, extruders, stampers, automotive companies and others active in spot 6022 trading.

US Painted Siding: Siding consisting of clean, low-copper aluminum siding scrap, painted one or two sides, free of plastic coating, iron, dirt, corrosion, fiber, foam or fiberglass backing or other non-metallic items, for US Midwest delivery within 30 days. Assessed once a week, usually on Thursdays, through a survey of scrap dealers and rolling mill buyers. Price started in March 2006.

US High-grade auto shreds: Auto shreds generated through a heavy media-based separation process, containing at least 98% metallics and not more than 1% free zinc, to include material from the following suppliers: Huron Valley, Newell, Ferrous Processing/SLC Recycling and Fort Wayne OmniSource Corp., for US Midwest delivery within 30 days. Assessed twice a week, usually on Mondays and Thursdays, through a survey of secondary aluminum smelters and scrap dealers/processors. Price started in May 2006, replacing previous auto shreds/twitch price effective September 2006.

5052 new bare scrap: New, bare aluminum scrap meeting 5052 specification. The minimum thickness is 0.015" (0.38 mm); free of hair wire, wire screen, dirt and other non-metallic items. Oil and grease not to total more than 1%. Also free from

punchings less than 1/2" (1.27 cm) in size, as per Institute of Scrap Recycling Industries Specifications. The price is assessed in cents per pound, taking into account spreads, outright values and percentages of the Platts Transaction price, normalized to a spot business shipping within 30 days, delivered Midwest basis, net-30 day payment terms. The assessment is based on a survey of scrap consumers, dealers, traders, brokers, and others active in the spot 5052 new bare market. Minimum cargo sizes of 45,000 lb (one truckload) or more. Deals delivered to non-Midwestern locations are normalized to a delivered Midwest basis.

US Low-grade auto shreds: Auto shreds generated through an eddy current based or hand separation process, containing at least 90% metallics and not more than 4% zinc, for US Midwest delivery within 30 days. Assessed twice per week, usually on Mondays and Thursdays, through a survey of secondary aluminum smelters and scrap dealers. Price started in May 2006, replacing previous auto shreds/twitch price effective September 2006.

Old cast delivered NE Mexico: Weekly assessment of the price for old cast aluminum scrap, assessed in pesos/kg (and also published the same day in US dollars or cents/pound equivalent), on Thursdays or closest business day in the event of holidays. The assessment is for old cast aluminum scrap with up to 5% contamination, minimal 88% recovery. Prices are normalized to spot business shipping within 30 days, delivered in northeastern Mexico (Nuevo Leon and Coahuila states), free of VAT (IVA) tax, net-30 day payment terms for typical volumes of 20 mt. Based on a survey of scrap dealers, secondary smelters and others active in spot old cast trading.

Old sheet, delivered NE Mexico: Weekly price assessment for non-cast aluminum items for consumption by secondary aluminum smelters to meet ISRI "taint/tabor" grade, containing 2-3% Fe. Assessed once per week on Thursdays, or closest business day, through a survey of scrap dealers, aluminum mills, secondary smelters and others active in old sheet spot trading.

Assessed in pesos/kg (and also published the same day in US dollar or cents/pound equivalent), normalized to spot business shipping within 30 days, delivered in northeastern Mexico (Nuevo Leon and Coahuila states) free of VAT (IVA) tax, net-30 day payment terms for typical volumes of 20 mt.

UBCs delivered NE Mexico: Weekly price assessment for baled used beverage cans, to meet ISRI "taldon" specification. Assessed once per week on Thursdays, or closest business day, through a survey of scrap dealers, aluminum mills, secondary smelters and others active in UBC trading. Assessed in pesos/kg (and also published the same day in US dollar or cents/pound equivalent), normalized to spot business shipping within 30 days, delivered in the northeastern Mexico (Nuevo Leon and Coahuila states) free of VAT (IVA) tax, net-30 day payment terms for typical volumes of 20 mt.

6063 new bare delivered NE Mexico: Weekly price assessment for 6063 new bare scrap assessed in pesos/kg (and also published the same day in US dollar or cents/pound equivalent) on Thursdays or closest business day in the event of holidays. The assessment is for 6063 new bare scrap, free of paint, may be anodized -- may include press scrap with butts. Prices are normalized to spot business shipping within 30 days, delivered in the northeastern Mexico (Nuevo Leon or Coahuila states) free of VAT (IVA) tax, net-30 day payment terms for typical volumes of 20 mt. Based on a survey of scrap dealers, secondary smelters, extruders, cable makers and others active in spot 6063 extrusion scrap trading.

Secondary Alloys

US A380 Alloy: Twice-weekly price assessment for A380 secondary aluminum alloy that reflects the following chemistry and terms: 8-9.5% Si, 1% Fe, 3-4% Cu, 0.5% Mn, 0.1% Mg, 0.5% Ni, 2.9% Zn, and 0.35% Sn, for spot delivery to US Midwest customer works, payment net-30 to net-60 days, minimum 45,000-lb truckload amounts. The price assessment is for new A380 specification alloy produced by smelters with reverberatory

furnaces, not warehoused LME North American Special Aluminium Alloy Contract (NASAAC) material. The assessment represents the spot market tradeable value of delivered prices. It is derived from a survey of US secondary aluminum smelters, diecasters, foundries, automotive companies, traders and brokers. The assessment is carried out twice-weekly on Mondays and Thursdays, closing at 4:30 pm US East Coast time, except in the case of national holidays, where it may be assessed on the next-closest business day. During certain holiday weeks where market activity is more limited, the assessment is carried out once per week. More information on when the holiday schedule affects the price assessment frequency can be found here: <http://www.platts.com/holiday>. Price assessment started in 1992.

US 319, 356, F132, A-413.1, F-132 and B390: Twice-weekly price assessment ranges for major secondary aluminum alloys. Delivered Midwest customer works, payment net-30 to net-60 days, 45,000-lb truckload quantities. Assessed twice per week, on Mondays and Thursdays (except for changes during holidays), through a survey of US secondary aluminum smelters, diecasters, foundries, automotive companies, traders and brokers. The assessments reflect the narrow low-high price range, in cents/lb, of the majority of concluded deals, bids and offers. The impurity levels represent the Aluminum Assn. specifications or typical market specifications for 319.1, 356.1, 332.2, A413 and B390, respectively, as follows: 319.1 – 5.5-6.5% Si; 0.8% Fe, 3.0-4.0% Cu; 0.50% Mn, 0.10% Mg, 0.35% Ni; 1.0% Zn, 0.25% Ti. 356 – 6.5-7.56% Si; 0.50% Fe; 0.25% Cu; 0.35% Mn; 0.25-0.45% Mg; 0.35% Zn; 0.25 Ti. F-132 – 8.5-10.0% Si; 0.6% Fe; 2.0-4.0% Cu; 0.20 Mn; 0.9-1.3% Mg; 0.10% Ni; 0.10% Zn; 0.20% Ti. A-413.1 – 11-13% Si; 1% Fe max; 0.6% Cu max; 0.35% Mn; 0.1% Mg; 0.5% Ni; 0.5% Zn; and 0.15% Sn. B390 – 16-18% Si, 1.3% max Fe, 4.0-5.0% Cu, 0.50% Mn, 0.45-0.65% Mg, 0.10% Ni, 1.4% Zn and 0.20% Ti. Price assessments for 319, 356, and F132 started in April 1993; A413 started in 2010 and B390 in 2013.

European secondary aluminium 226 alloy (Started Sep 1, 2003): Weekly assessment of the Eur/mt price for secondary aluminum alloy 226 LME grade on a delivered German works basis 0-30

day terms, prompt delivery. The alloy is produced in conformity with GBD-ALSi9Cu3 as described in DIN standard 1725 (1986). Based on a survey of producers, traders and consumers of aluminium 226. Price assessed weekly and published on Fridays.

Aluminum Alloy 231 DDP Germany: Weekly assessment of the physical spot market price for secondary aluminum produced in conformity with ALSi12(Cu) as described in DIN 1706, shipped on a delivered duty-paid basis in full truck loads to German works with prompt delivery and payment terms within 30 days, Eur/mt. Other qualities are considered and normalized back to Platts base standard specifications, subject to prevailing market differentials. Aluminum alloy 231 DDP Germany is assessed every week on a Friday or closest prior business day.

ADC12 ex-works China: Platts assessment for ADC12 Alloy to conform to JIS standard – 9.6-12% Si, 0.9% Fe, 1.5-3.5% Cu, 0.5% Mn, 0.3% Mg, 0.5% Ni, 1% Zn, and 0.2% Sn. Spot

prices assessed weekly on Tuesday or closest working day. The assessment reflects the domestic market price, on a spot trade basis, in yuan per mt, ex-plant from a typical supplier. The spot price represents a range of spot transactions, bids and offers determined by surveying Chinese secondary aluminum smelters, diecasters, foundries, automotive companies, traders and brokers.

ADC12 FOB China: Platts assessment for ADC12 Alloy to conform to JIS standard – 9.6-12% Si, 0.9% Fe, 1.5-3.5% Cu, 0.5% Mn, 0.3% Mg, 0.5% Ni, 1% Zn, and 0.2% Sn. Spot prices assessed weekly on Tuesday or closest working day. The assessment reflects the export market price, on a spot trade basis, in \$/mt, FOB Chinese ports, mainly Shanghai and Tianjin. The spot price represents a range of spot transactions, bids and offers determined by surveying secondary aluminum smelters, diecasters, foundries, automotive companies, traders and brokers in China, Hong Kong and Japan.

BASE METALS

Assessment	CODE	Mavg	Wavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
Copper											
Copper NY Dlr Prem Cath Wkly	MMACP00	MMACP03		MMACP16	Premium or discount to COMEX spot for Grade 1 or Grade A copper cathodes	Not specified	Not specified	Normalized to delivered Midwest	Delivery within 30 days	Net-cash	cents/lb
Copper US Transaction Daily	MMCUT00	MMCUT03	MMCUT04	MMCUT16	COMEX copper first position (spot) for Grade 1 or Grade A copper cathode, (CMAAD10) plus the mean of the weekly copper NY Dealer Cathode Premium (MMACP00)	Not specified	Not specified	Normalized to delivered Midwest	Delivery within 30 days	Net-cash	cents/lb
Copper LME Prem C&F China Daily	MMAMK00				99.95% minimum cathode, mostly of Chilean origin	NA	NA	C&F China - Huangpu, Shanghai, Guangzhou, Hong Kong	NA	"upon receipt of letter of credits, usually within one month following the transaction"	\$/mt
Copper C&F China (All-in) Daily	MMAMJ00				99.95% minimum cathode, mostly of Chilean origin	Not specified	Not specified	C&F China - Huangpu, Shanghai, Guangzhou, Hong Kong	Not specified	"upon receipt of letter of credits, usually within one month following the transaction"	\$/mt
Copper C&F China Spot Yuan/mt (All-in)	MMSC00	MMSC03			99.95% minimum cathode, mostly of Chilean origin	NA	NA	C&F China - Huangpu, Shanghai, Guangzhou, Hong Kong	NA	"upon receipt of letter of credits, usually within one month following the transaction"	Yuan/mt
Copper C&F China Fxd Prc Equiv (All-in)	MMCUC00	MMCUC03			99.95% minimum cathode, mostly of Chilean origin	NA	NA	C&F China - Huangpu, Shanghai, Guangzhou, Hong Kong	NA	"upon receipt of letter of credits, usually within one month following the transaction"	\$/mt
Scrap											
Copper No1 Burnt Scrap Discount	MMACJ10	MMACJ02		MMACJ16	97-98% Cu	Minimum truckload	wire, pipe and tubing	delivered Midwest	Within 30 days	net 30 days	cents/lb
Copper No1 Bare Bright Discount	MMACL10	MMACL02		MMACL16	98-99% Cu	Minimum truckload	bricks, blocks	delivered Midwest	Within 30 days	net 30 days	cents/lb
Copper No 2 Scrap Discount	MMACN10	MMACN02		MMACN06	94-96% Cu	20-40 foot containers	wire and miscellaneous scrap	delivered FAS major US ports	Within 3 months	At time of shipment	cents/lb
Lead											
Lead US Premium (Weekly) cents/lb	MMXCD00	MMXCD03			Premium or discount to LME lead cash price for 99.97% pure corroding-grade lead, maximum 0.025% bismuth, max 0.0050% silver, max 0.0010% Cu, max 0.001 Fe	Minimum quantity one truckload (42,000-44,000 lb), typical order size one to five truckloads.	2,000-lb blocks (sows) or 55-100 lb pigs (ingots)	delivered US	30-day delivery	net 30 days	cents/lb
Lead NA Market (Daily)	MMALF01	AADDN00	MMALF04		Daily LME cash settlement price in cents/lb plus weekly Platts US lead premium for 99.97% pure corroding-grade lead, maximum 0.025% bismuth, max 0.0050% silver, max 0.0010% Cu, max 0.001 Fe	"Minimum quantity one truckload (42,000-44,000 lb), typical order size one to five truckloads."	"2,000-lb blocks (sows) or 55-100 lb pigs (ingots)"	delivered US	30-day delivery	net 30 days	not specified

BASE METALS

Assessment	CODE	Mavg	Wavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
Scrap											
Lead-acid batteries, used US Midwest (Weekly range)	MMLAA04	MMLAA03			50% lead-acid, starter lighter ignition automotive batteries	Minimum quantity one truckload (42,000-44,000 lb), with typical order size one to five truckloads	packaged in shrink-wrapped pallets or skids, pallet size 40 or 44 by 48, maximum 3,600 lb per skid, no more than three battery layers separated by cardboard sheets.	picked-up US Midwest, normalized to a Midwest region including Ohio, Michigan, Wisconsin, Minnesota, Indiana, Illinois, Kansas, Nebraska, Missouri, Iowa and Kentucky.	30-day delivery	net-30-day payment	cents/lb
Lead-acid batteries, used US Northeast (Weekly range)	MMLAB04	MMLAB03			50% lead-acid, starter lighter ignition automotive batteries	Minimum quantity one truckload (42,000-44,000 lb), with typical order size one to five truckloads	packaged in shrink-wrapped pallets or skids, pallet size 40 or 44 by 48, maximum 3,600 lb per skid, no more than three battery layers separated by cardboard sheets.	picked up US Northeast, normalized to include New York, New Jersey, Pennsylvania, Delaware, Maryland, Connecticut, Massachusetts, Vermont, New Hampshire, Rhode Island and Maine.	30-day delivery	net-30-day payment	cents/lb
Zinc											
Zinc MW SHG Premium (Weekly)	MMAYH00				Weekly premium or discount to the LME cash price for special high grade zinc	Truckload minimum, typical 200-400 mt	NA	Normalized to delivered Midwest	Within 30 days	Net-30 day payment	cents/lb
Zinc NA SHG Daily	MMABD10	MMABD02	MMABD01	MMABD16	All-in daily price for special high-grade zinc, LME cash converted into cents/lb plus weekly premium	Truckload minimum, typical 200-400 mt	NA	Normalized to delivered Midwest	Within 30 days	Net-30 day payment	cents/lb
Zinc US Dealer SHG Wkly	MMABF10				All-in weekly price for special high-grade zinc	Truckload minimum, typical 200-400 mt		Normalized to delivered Midwest	Within 30 days	Net-30 day payment	
Zinc US Galvanizer Premium	MMAYI00				Premium or discount to the LME for special high-grade zinc or continuous galvanizing grade zinc in jumbo form	Normalized to a typical spot quantity of 1-2 railcars, or 4-9 truckloads	Typical physical properties including weight of 2,426 lb (1,100 kg), length of 31.5 inches (80 cm), depth of 20 inches (50 cm) and height of 20 inches (50 cm),	Normalized to delivered US Midwest	Within 30 days	Net-30 day payment	

BASE METALS

Assessment	CODE	Mavg	Wavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
Zinc NA Galvanizer Daily	MMABI10	MMABI02	MMABI01	MMABI16	All-in price for special high-grade zinc, LME plus premium	Normalized to a typical spot quantity of 1-2 railcars, or 4-9 truckloads	NA	Normalized to delivered Midwest	Within 30 days	Net-30 day payment	
Zinc (SHG) Prem Rot'dam Monthly	MMAYN04				Premium or discount to the LME cash price for special high grade zinc	Not specified, minimum truckload		FCA Rotterdam	Prompt delivery	0-60-day terms	\$/mt
Europe physical SHG zinc FCA Rotterdam Monthly	MMALC00				All-in price for special high-grade zinc, LME plus premium	Not specified	NA	FCA Rotterdam	Prompt delivery	0-60-day terms	\$/mt
Secondary Alloys											
US Zinc Alloy No 3 Daily	MMABH10	MMABH02	MMABH01	MMABH16	All-in price for US zinc No. 3 Alloy	Truckload minimum, typical 100-250 mt	NA	Normalized to delivered Midwest, 1.5-2.5 cents average freight	Within 30 days	Net-30 days	cents/lb
US Zinc MW Alloy No. 3 Premium Weekly	MMAYJ00				Premium or discount to LME cash price for zinc No. 3 Alloy	Truckload minimum, typical 100-250 mt	NA				cents/lb
Tin											
Tin NY Dealer Twice-Weekly	MMAAW10	MMAAW02	MMAAW01	MMAAW16	New York Grade A tin	Not specified, minimum truckload	NA	Duty paid, ex-dock	Spot	Not specified	cents/lb
Nickel											
Nickel US Cathode Premium Spot Weekly	MMAZM04				99.8% Ni	Not specified	4x4 cut cathodes	Delivered US	within 30 days	Net-30 days	cents/lb
Nickel US Melt Premium Spot Weekly	MMAZI04	MMAZJ03			99.8% Ni	Not specified	cathode and other forms	Delivered US	within 30 days	Net-30 days	cents/lb
Nickel Plate Prem Spot US Weekly	MMAZK04	MMAZL03			99.8% Ni	Not specified	full plate uncut cathode	Delivered US	within 30 days	Net-30 days	cents/lb
Nickel NY Dealer Cathode (All-in price) Weekly	MMAAQ00	MMAAQ03		MMAAQ16	99.8% Ni	Not specified	4x4 cut cathodes	Delivered US	within 30 days	Net-30 days	\$/lb
Nickel NY Dealer Melt (All-in price) Weekly	MMAAS00	MMAAS03		MMAAS16	99.8% Ni	Not specified	cathode and other forms	Delivered US	within 30 days	Net-30 days	\$/lb
Nickel NY Dealer Plate (All-in price) Weekly	MMAAU00				99.8% Ni	Not specified	full plate uncut cathode	Delivered US	within 30 days	Net-30 days	\$/lb
Nickel Briq Prem IW Rdam Weekly	AALWJ00	AALWK00			LME grade min. 99.8% Ni	Not specified	Briquettes	In-warehouse Rotterdam	within 30 days	Not specified	\$/mt
Nickel Plating Grade Cathode Prem Rotterdam Wkly	MMAY004				LME grade min. 99.8% Ni	Not specified	4x4 cut cathodes	In-warehouse Rotterdam	within 30 days	Not specified	\$/mt
Nickel Prem Russian Rot'dam Weekly	MMAYP04				LME grade min. 99.8% Ni	Not specified	full plate uncut cathode	In-warehouse Rotterdam	within 30 days	Not specified	\$/mt

Base metals

Copper

NY Dealer Premium/Cathode: Platts assessment of weekly typical market premium, expressed in cents/lb above First Position (spot) COMEX being charged by New York metal merchants on the next to last business day of the week.

Copper C&F China: Daily assessed premium for Grade A 99.95% minimum cathode, mostly of Chilean origin, over LME cash for C&F China copper business. Cargo leaves port upon receipt of letter of credits, usually within one month following the transaction. Delivered to main Chinese ports such as Huangpu, Shanghai, Guangzhou, and Hong Kong.

Scrap

No. 1 Burnt Scrap: Mid-week price assessment for US-delivered burnt wire, including wire, pipe and tubing, expressed as a cents/lb discount spread to the COMEX spot copper (first position). Normalized to delivered US Midwest basis within 30 days, net-30 day payment terms.

No. 1 Bare Bright Scrap: Mid-week price assessment for US-delivered bare bright scrap, in bricks or blocks, expressed as a cents/lb discount spread to COMEX spot copper price (first position). Normalized to delivered US Midwest basis within 30 days, net-30 day payment terms.

No. 2 Scrap: Mid-week price assessment for US-delivered clean No. 2 scrap (94-96% Cu), including wire and miscellaneous scrap, expressed as a cents/lb discount spread to the COMEX active month. Normalized to delivered FAS major US ports, for delivery within 3 months, payment at time of shipment.

Lead

US Lead Premium: US premium to the LME settlement price for

99.97% pure corroding grade lead, in 2,000-lb blocks (sows) or 55-100 lb pigs (ingots), maximum 0.025% bismuth, max 0.0050% silver, max 0.0010% Cu, max 0.001 Fe, delivered US within 30 days, normalized to a delivered Midwest basis, net-30 days payment terms. Minimum quantity one truckload (42,000-44,000 lb), typical order size one to five truckloads. Assessed weekly on Tuesday or closest business day in the event of holidays, through a survey of primary and secondary lead producers, traders and consumers of refined lead.

North American Lead Market Price: Daily formula assessment reflecting the current day's LME lead cash settlement price in cents per pound plus the weekly US premium.

Scrap

US Used Lead-Acid Batteries picked up US Midwest: Weekly assessment for 50% lead-acid, starter lighter ignition automotive batteries, picked up US Midwest, normalized to a Midwest region including Ohio, Michigan, Wisconsin, Minnesota, Indiana, Illinois, Kansas, Nebraska, Missouri, Iowa and Kentucky. Assessed in cents/lb, suitable for delivery to secondary smelters within 30 days, net-30 days payment terms. Minimum quantity one truckload (42,000-44,000 lb), with typical order size one to five truckloads, packaged in shrink-wrapped pallets or skids, pallet size 40" or 44" by 48", maximum 3,600 lb per skid, no more than three battery layers separated by cardboard sheets. Assessed weekly through a survey of secondary lead smelter buyers, scrap dealers/processors, traders and brokers. Input from scrap yards will also be considered for trend purposes. The lead prices are assessed weekly on Tuesdays (or closest business day in the event of holidays).

US Used Lead-Acid Batteries picked up US Northeast: Weekly assessment for used 50% lead-acid, starter lighter ignition automotive batteries, picked up US Northeast. The Northeast region for price normalization will include New York, New Jersey, Pennsylvania, Delaware, Maryland, Connecticut, Massachusetts, Vermont, New Hampshire, Rhode Island and Maine. Assessed

in cents/lb, suitable for delivery to secondary smelters within 30 days, net-30 days payment terms. Minimum quantity one truckload (42,000-44,000 lb), with typical order size one to five truckloads, packaged in shrink-wrapped pallets or skids, pallet size 40" or 44" by 48", maximum 3,600 lb per skid, no more than three battery layers separated by cardboard sheets. Assessed weekly through a survey of secondary lead smelter buyers, scrap dealers/processors, traders and brokers. Input from scrap yards will also be considered for trend purposes. The lead prices are assessed weekly on Tuesdays (or closest business day in the event of holidays).

Zinc

US SHG premium: Weekly assessment of the spot premium or discount to the London Metal Exchange cash settlement price for special-high-grade zinc, normalized to a delivered US Midwest basis within 30 days, net-30 day payment terms. Minimum full truckload; normalized to typical quantity 200-400 mt.

US North American SHG (MW NA SHG): All-in price based on LME base price plus premiums or discounts.

US Galvanizer premium: Weekly assessment of the spot premium or discount to the LME SHG zinc cash settlement price for zinc in jumbo form, with typical physical properties including weight of 2,426 lb (1,100 kg), length of 31.5 inches (80 cm), depth of 20 inches (50 cm) and height of 20 inches (50 cm), including special high-grade zinc with composition of 99.995% Zn or continuous galvanizing grade containing 0.22% to 1.10% aluminum. The assessment is normalized to a typical spot quantity of 1-2 railcars, or 4-9 truckloads, delivered US Midwest, net-30 day payment terms.

US North American Gal (MW NA GAL): All-in formula-based quote aimed at zinc users in the galvanized and steel markets. Factors considered are the LME cash price plus premiums or discounts, financing by the consumer, and other market related conditions. Varies on a daily basis.

US Alloy No. 3 premium: Weekly assessment of the premium or discount to the London Metal Exchange cash settlement price for No. 3 zinc alloy, normalized to a delivered Midwest basis within 30 days, net-30 days payment terms. Minimum full truckload; normalized to a typical quantity of 100-250 mt.

US Alloy No. 3: US alloyer quote for No. 3 die casting alloy, 30,000-lb lots and over, delivered, based on LME cash price plus premiums for alloying. Varies on a daily basis.

Europe – SHG Rotterdam: Monthly assessment of the \$/mt premium over LME cash for Special High Grade zinc on an FCA Rotterdam basis, 0-60-day terms, prompt delivery. Based on a survey of producers, traders and consumers of zinc. Assessed on the third Wednesday of each month, except in the case of holidays. . Platts also publishes the all-in price reflecting the LME cash settlement price for the third Wednesday of each month plus the premium range.

Nickel

Nickel US Cathode Premium Spot: Weekly assessment of the premium or discount to LME nickel cash settlement price for 99.8% Ni, 4”X4” cathode, to include US and Canada business, DDP US within 30 days, net-30-day payment terms.

Nickel US melt premium spot: Weekly assessment of the premium or discount to LME nickel cash settlement price for melting grade 99.8% Ni, in cathodes or other forms, basis DDP US within 30 days, net-30-day payment.

Nickel plate premium spot US: Weekly assessment of the premium or discount to LME nickel cash settlement price for 99.8% Ni full-plate uncut cathodes, DDP US within 30 days, net-30 day payment.

Nickel European Cut Cathode (plating grade) premium: Weekly assessment for the spot premium or discount to LME cash for nickel 4x4 inch cut cathodes, LME grade minimum 99.8% nickel, on an in-warehouse Rotterdam basis. The premium is assessed on US dollar per metric ton basis. The assessment is based on a survey of producers, traders and consumers of nickel. Nickel cut cathode is assessed every week on Fridays or closest prior business day.

Nickel European Briquette premium: Weekly assessment of the spot premium or discount to LME cash for nickel briquettes, LME grade minimum 99.8% nickel, on an in-warehouse Rotterdam basis. The premium is assessed on US dollar per metric ton basis. The assessment is based on a survey of producers, traders and consumers of nickel. Nickel briquettes are assessed every week on Fridays or closest prior business day.

Europe — Russian Full Plate: Weekly assessment of the spot premium or discount to LME cash for Russian full plate uncut cathode, LME grade minimum 99.8% nickel, on an in-warehouse Rotterdam basis. The premium is assessed on a US dollar per metric ton basis. The assessment is based on a survey of producers, traders and consumers of nickel. Russian full plate is assessed every week on Fridays or closest prior business day.

BATTERY METALS

Assessment	CODE	Mavg	Qavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
Lithium											
Lithium Carbonate CIF North Asia	BATLC04	BATLC03	BATLC05		min 99.5% Li2CO3	5-40 mt	powder packed in bags	CIF China / Japan / South Korea	15-60 days	Letter of Credit	\$/mt
Lithium Hydroxide CIF North Asia	BATLH04	BATLH03	BATLH05		min 56.5% LiOH H2O	5-150 mt	powder packed in bags	CIF China / Japan / South Korea	15-60 days	Letter of Credit	\$/mt
Lithium Carbonate DDP China	BATCA04	BATCA03	BATCA05		min 99.5% Li2CO3	min 1 truckload	powder packed in bags	DDP China	within 14 days	Cash or LC	Yuan/mt
Lithium Hydroxide DDP China	BATHY04	BATHY03	BATHY05		min 56.5% LiOH H2O	min 1 truckload	powder packed in bags	DDP China	within 14 days	Cash or LC	Yuan/mt
Lithium Spodumene FOB Australia	BATSP03				min 6% Li2O	min 1,000 mt	concentrate	FOB Australia	within 30 days	Letter of Credit	\$/mt
Cobalt											
Cobalt Sulfate CIF North Asia	BATC004	BATC003	BATC005		min 20.5% Co	5-150 mt	powder packed in bags	CIF China / Japan / South Korea	15-60 days	Letter of Credit	\$/mt
Cobalt Sulfate DDP China	BATCS04	BATCS03	BATCS05		min 20.5% Co	min 1 truckload	powder packed in bags	DDP China	within 14 days	Cash or LC	Yuan/mt

Battery Metals**Lithium**

Lithium Carbonate CIF North Asia: Weekly assessment of the physical spot market price for minimum 99.5% purity battery grade lithium carbonate, shipped on a delivered basis in containers of 5-40mt to China, Japan or South Korea between 15-60 days from the date of publication on a letter of credit basis, \$/mt. Other qualities are considered but may be normalized back to Platts base standard specifications, subject to prevailing market differentials. Lithium carbonate is assessed every week on Fridays or closest prior business day.

Lithium Carbonate DDP China: Weekly assessment of the physical spot market price for minimum 99.5% purity battery grade lithium carbonate, shipped on a delivered, duty paid basis to China with a minimum volume of one truckload within 14 days from the date of publication on a letter of credit or cash basis, Yuan/mt. Other qualities are considered but may be normalized back to Platts base standard specifications, subject to prevailing market differentials. Lithium carbonate is assessed every week on Fridays or closest prior business day.

Lithium Hydroxide CIF North Asia: Weekly assessment of the physical spot market price for minimum 56.5% purity battery grade lithium hydroxide, shipped on a delivered basis in containers of 5-150mt to China, Japan or South Korea between 15-60 days from the date of publication on a letter of credit basis, \$/mt. Other qualities are considered but may be normalized back to Platts base standard specifications, subject to prevailing market differentials. Lithium carbonate is assessed every week on Fridays or closest prior business day.

Lithium Hydroxide DDP China: Weekly assessment of the physical spot market price for minimum 56.5% purity battery grade lithium hydroxide, shipped on a delivered, duty paid basis to China with a minimum volume of one truckload within 14 days from the date of publication on a letter of credit or cash basis, Yuan/mt. Other qualities are considered but may be normalized back to Platts base standard specifications, subject to prevailing market differentials. Lithium carbonate is assessed every week on Fridays or closest prior business day.

Lithium Spodumene FOB Australia: Monthly assessment of the physical spot market price for lithium spodumene with a minimum 6% lithium oxide content exported on a free on

board basis of a minimum volume of 1,000mt from Western Australian ports within 30 days of the date of publication on a letter of credit basis, \$/mt. Other qualities are considered but may be normalized back to Platts base standard specifications, subject to prevailing market differentials. Lithium spodumene is assessed every month on the final business day.

Cobalt

Cobalt Sulfate CIF North Asia: Weekly assessment of the physical spot market for cobalt sulfate with a minimum 20.5% cobalt content, shipped on a delivered basis in containers of 5-150 mt to China, Japan or South Korea between 15-60 days from the date of publication on a letter of credit basis, \$/mt. Other qualities are considered but may be normalized back to Platts base standard specifications, subject to prevailing market differentials. Cobalt sulfate is assessed every week on Thursdays or closest prior business day.

Cobalt Sulfate DDP China: Weekly assessment of the physical spot market for cobalt sulfate with a minimum 20.5% cobalt content, shipped on a delivered duty paid basis China with a minimum volume of one truckload within 14 days from the date

of publication on a letter of credit or cash basis, Yuan/mt. Other qualities are considered but may be normalized back to Platts base standard specifications, subject to prevailing market differentials. Cobalt sulfate is assessed every week on Thursdays or closest prior business day.

PRECIOUS

Assessment	CODE	Mavg	Wavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
Palladium NY Dealer Wk	MMABV00	MMABV03		MMABV06, MMABV16	99.95%	Not specified	Ingot or sponge	DDP US	Within 30 days	Net-10 days or less	\$/oz
Platinum NY Dealer Wk	MMAHX00	MMAHX03		MAHX06, MMAHX16	99.95%	Not specified	Ingot or sponge	DDP US	Within 30 days	Net-10 days or less	\$/oz
Rhodium NY Dealer Wk	MMAID00	MMAID03		MMAID06, MMAID16	99.90%	Not specified		DDP US	Within 30 days	Net-10 days or less	\$/oz
Ruthenium NY Dealer Wk	MMAIH00				99.90%	Not specified		DDP US	Within 30 days	Net-10 days or less	\$/oz
Iridium NY Dealer Wk	MMAIJ00				99%	Not specified		DDP US	Within 30 days	Net-10 days or less	\$/oz

Precious

Gold

Platts Gold Premium 995 India: Daily assessment reflecting the India physical spot market premium/discount to the international spot rates for 99.5% Gold, in kilo bar form, DDP Ahmadabad secure vault within 2 days, \$/troy oz. Based on a survey of traders, banks, refiners, importers and producers. Reflects the prevailing value at 1700 Indian Standard Time (IST).

Iridium

NY Dealer: Weekly assessment of the US spot market price for min. 99% Ir purity, DDP US within 30 days, max net-10 day payment terms, in \$/oz.

Palladium

New York Dealer: Weekly assessment of the physical spot market price for 99.95% purity palladium, in ingot or sponge form, DDP US within 30 days, max net-10 day payment, \$/oz. Based on a survey of traders, refiners, recyclers and producers.

Platinum

New York Dealer: Weekly assessment of the physical spot market price for 99.95% platinum metal, in ingot or sponge form, DDP US within 30 days, max net-10 day payment, \$/oz. Based on a survey of traders, refiners, recyclers and producers.

Rhodium

New York Dealer: Weekly assessment of the physical spot market price for 99.9% purity rhodium, DDP US within 30 days, max net-10 day payment, \$/oz. Based on a survey of traders, refiners, recyclers and producers.

Ruthenium

New York Dealer: Weekly assessment of the physical spot market prices for 99.95% ruthenium metal, in ingot or sponge form, DDP US within 30 days, max net-10 day payment terms, \$/oz. Based on a survey of traders, refiners, recyclers and producers.

LIGHT/MINOR METALS

Assessment	CODE	Mavg	Wavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
Light metals											
Magnesium US Die Cast Alloy Wkly	MMAHR00	MMAHR03		MMAHR16	AZ91D, AM50 or AM60 on-spec diecast alloys	40,000 lb truckload	Ingots, sow or T-bars	Delivered US customer works	Shipment within 30 days	net-30 or net-60 days	cents/lb
Magnesium US Spot Western Wk	MMAHM00	MMAHM03		MMAHM16	99.8% pure, ASTM Grade 9980A	full 40,000 lb truckload	Ingots, sow or T-bars	Delivered US customer works	Shipment within 30 days	net-30 days	cents/lb
Magnesium US Dealer Import Wk	MMAHQ00	MMAHQ03		MMAHQ16	99.8%-99.9% pure, non-oxidized	full 40,000 lb truckload	Ingots, sow or T-bars	Delivered US customer works	Shipment within 30 days	net-30 days	cents/lb
Magnesium Eur Free Mkt Wkly	MMAIZ00				99.9% pure, unoxidized		Ingots, sow or T-bars	in-warehouse Rotterdam, duty unpaid		NA	\$/mt
Silicon 553 grade delivered US Midwest Weekly	MMAJM00	MMAJM03		MMAJM16	98.5% Si, max 0.5% iron, max 0.3% Ca, 0.2-0.5% Al	Four truckload	4-inch lumps, in bulk or 2,000-3,000 lb supersacks	delivered Midwest	30 days from transaction date	Net 30 days	Cents/lb Si contained
Silicon 553 grade in-warehouse EU Weekly	AAIUT00	MMAZH03			98.5% Si, max 0.5% Fe, max 0.3% Ca, 0.2-0.5% Al	Three truckload minimum	lumps size 50-100 mm, in bulk 1 mt big bags	in-warehouse EU, duty-paid	Delivery within 60 days	Net-30 days	Eur/mt
Silicon 553 grade FOB China Weekly	MMAJF00	MMAJF03		MMAJF16	98.5% Si, max 0.5% Fe, max 0.3% Ca, 0.2-0.5% Al	Min 20mt	Lumps 50-100mm	FOB main Chinese ports	Within 30 days of date of transaction	Telegraphic transfer, cash against documents, including original bill of lading and irrevocable letter of credit drawn against approved bank at site or equivalent.	\$/mt
Titanium .5% US Turning Wk	MMAJZ00	MMAJZ03		MMAJZ16	90% Ti, 6% Al, 4% V, 0.5% tin	Full truckload 40,000 lb		DDP US	Within 30 days of date of transaction	Not specified	\$/lb
Titanium .5% Euro Turning Wk	MMAJY00				90% Ti, 6% Al, 4% V, 0.5% tin	Full container load - 20 mt		DDP EU	Within 30 days of date of transaction	Not specified	\$/lb
Minor Metals											
Antimony NY Dealer Wkly	MMACY00	MMACY03		MMACY16	99.65% min, 0.15% max arsenic	5-mt lots	Ingot	DDP US buyer's works	Within 30 days	Net 30 days	\$/lb
Bismuth NY Dealer Wkly	MMADA00	MMADA03			Min 99.99%	1 mt minimum	Not specified	DDP US buyer's works	Within 30 days	Net 30 days	cts/lb
Cobalt 99.8% European Wkly	MMAIK00				99.8% Co	1-5 mt	1"x1" cut cathodes	DDP European buyer's works, or in-warehouse transfer	Within 30 days	Net 30 days	\$/lb
Cobalt US Spot Cathode Wkly	MMAE000	MMAE003		MMAE016	99.8% Co	1-5 mt	1 inch cathodes and/or roundelles	DDP US buyer's works, or in-warehouse transfer	Within 30 days	Net 30 days	\$/lb
Cobalt Russian Wkly			MMANL04		99.3% Co	1-5 mt	15 kg ingots	DDP US buyer's works, or in-warehouse transfer	Within 30 days	Net 30 days	\$/lb
Cobalt Zambian Wkly	MMAKF00				99.6% Co	1-5 mt	broken cathodes	DDP US buyer's works, or in-warehouse transfer	Within 30 days	Net 30 days	\$/lb

LIGHT/MINOR METALS

Assessment	CODE	Mavg	Wavg	Yavg	QUALITY	QUANTITY	DIMENSIONS	LOCATION	TIMING	PAYMENT TERMS	UOM
Indium NY Dealer Wkly	MMAKI00	MMAKI03			99.99% min	Min lots 50 kg	Not specified	DDP US buyer's works, Within 30 days or in-warehouse transfer		Net 30 days	\$/kg
MW Dealer Rhenium Weekly	AAGTD00	AAGTE00			69.4% Re contained (ammonium perrhenate)		NA	DDP US buyer's works	Within 30 days	Net 30 days	\$/kg
Selenium MW Dealer Wkly	MMADL00	MMADL03		MMADL16	99.50%		NA	DDP US buyer's works	Within 30 days	Net 30 days	\$/kg
Tungsten US Spot Ore Wk	MMAHA00				65% WO3	Not specified	NA	DDP US buyer's works	Within 30 days	Net 30 days	\$/lb W contained
Tungsten APT US Wk	MMAHC00				88.5% WO3	Not specified	NA	DDP US buyer's works	Within 30 days	Net 30 days	\$/STU

Light/minor metals**Magnesium**

US Die Cast Alloy/Tran: Western specification, automotive-qualified AZ91D, AM50 or AM60 diecast alloy, 40,000-lb (truckload), net 30-60 day payment terms, delivered, duty paid US diecasters. Includes primary or secondary specification diecast alloys, assessed weekly in a range reflecting the majority of business or where a transaction is most likely to occur on a spot basis, based on a survey of producers, traders and diecasters. Started July 1, 1993.

US Spot Western: Western-origin pure 99.8% Mg ingot, ASTM Grade 9980A, sold directly by primary producers. Minimum full truckload (40,000 lb) lots, net 30 days payment terms, duty paid, prompt delivery to US customer plant (Al alloying, chemical, and Mg ferrosilicon segments). Started July 1, 1993.

US Dealer Import: Non-oxidized, pure 99.8-99.9% Mg ingot, sold by traders, typically from Russia, Kazakhstan or other origins. Minimum full truckload (40,000 lb) lots, net 30 days payment terms, duty paid, prompt delivery to US customer plant (Al alloying, chemical, and Mg ferrosilicon segments). Started July 1, 1993.

European Free Market: Weekly assessment of the dealer

traded price for 99.9% pure, mostly Chinese or Russian origin, unoxidized Mg, in warehouse Rotterdam, duty unpaid.

Silicon

Silicon 553 Grade, Delivered US Midwest: Weekly assessment of the repeatable, tradeable, spot price for US and imported 553 grade silicon metal with minimum 98.50% silicon; maximum 0.50% iron; maximum 0.30% calcium and 0.2-0.5% aluminum; lumps size 4 inches; cents/lb, in bulk or 2,000-3,000 lb supersacks, duty-paid, delivered Midwest, delivery within 30 days from date of transaction; net-30 days payment terms from date of delivery. Reported in-warehouse, or picked-up, transactions normalized to delivered US Midwest. Fines normalized to stated lump specifications. Special packaging and payment terms to be normalized to meet stated specifications. Assessment quantities are three truckloads and upward. Smaller quantities to be normalized to stated quantity. Assessment made Wednesdays or closest business day, based on a survey of producers, traders and consumers, closing at 4pm New York time. Assessment started October 22, 1975.

Silicon, 553 grade, in-warehouse EU: Weekly assessment of the repeatable, tradeable, spot price for EU origin and imported 553 grade silicon metal with minimum 98.50% silicon; maximum 0.50% iron; maximum 0.30% calcium and 0.2-0.5% aluminum; lumps size 50-100 mm; euros/mt, in bulk/1 mt big

bags in-warehouse, duty-paid, EU main ports, producer plants and major EU warehousing hubs; delivery within 60 days from date of transaction; net-30 days payment terms from date of delivery. Reported delivered transactions normalized back to in-warehouse basis. Special packaging and payment terms to be normalized to meet stated specifications. Transaction quantities are three truckloads and greater. Smaller quantities to be normalized to stated quantity. Assessment made Thursdays or closest business day from a survey of producers, traders and consumers. Assessment started March 7, 2002.

Silicon 553 grade, FOB China: Weekly assessment of the repeatable, tradeable, spot price for Chinese origin and imported 553 grade silicon metal with minimum 98.50% silicon; maximum 0.50% iron; maximum 0.30% calcium and 0.2-0.5% aluminum; lumps size 50-100 mm; \$/mt, FOB main Chinese sea ports, in bulk/1 mt big bags loaded on oceangoing vessel or packed in seagoing 20-ft or 40-ft containers and customs sealed, export tariff-paid, within 30 days of date of transaction. Payment by telegraphic transfer, cash against documents, including original bill of lading and irrevocable letter of credit drawn against approved bank at site or equivalent. Assessment quantities are 20 mt and greater, with smaller volumes normalized to stated quantity. Special packaging and payment terms to be normalized to meet stated specifications. Assessment made Thursdays or closest business day from a survey of producers, traders and consumers. Assessment started June 27, 1991.

Titanium

US Turnings 0.5% – Assessed spot market price for US unprocessed turnings, 90% Ti, 6% Al, 4% V, 0.5% tin, delivered US, duty paid.

European Turnings 0.5% – Assessed spot price for US- or European-generated turnings, 90% Ti, 6% Al, 4% V, 0.5% tin, delivered Europe, duty paid.

Antimony

NY Dealer: Weekly assessment for 99.65% min. antimony ingot, 0.15% max. arsenic, 5-mt lots, DDP US buyer's works.

Bismuth

NY Dealer: Weekly assessment for 99.99% min. purity, prompt delivery DDP US buyer within 30 days, net-30 terms. Min. one ton, \$/lb.

Cobalt

Europe - Cobalt 99.8%: Weekly assessed spot \$/lb price for minimum 99.8% cobalt, 99.8%, Falconbridge (Xstrata Nickel) or equivalent, 1"x1" cut, electrolytic, cobalt cathodes, minimum 99.8% Co. The price is assessed on an in-warehouse Europe

basis. Based on a survey of producers, traders and consumers of cobalt. Assessed weekly, usually on Thursdays.

99.8% US Spot Cathode: Weekly assessed US spot market price for cobalt, 99.8%, Falconbridge (Xstrata Nickel) or equivalent, 1"x1" cut, electrolytic, cobalt cathodes, minimum 99.8% Co, packed in 250 kg steel drums, four drums per wooden pallet, strapped to pallet. Assessed in \$/lb, delivered, duty-paid US, delivery within 30 days, payment net-30 days. All Cuban-origin material excluded from US cobalt assessments. Based on surveys of producers, merchants and consumers, assessed Thursdays or closest business day.

99.3% Russian: Weekly assessed US spot market price for cobalt, 99.3%, Russian K1A/K1Ay electrolytic ingot/granules, minimum 99.30% Co and 99.35% Co, K1A and K1Ay respectively, ingot sizes 370x110x60 mm or 270x150x50 mm for K1A, typical ingot weight 12-14 kg, or granules 5-50 mm for K1Ay, certified suitable for use in aerospace, packed in 250 kg steel drums, or packed in metal containers up to 4,500 kg net. Basis delivered, duty-paid, US, delivery within 30 days, payment net-30 days. Note: Russian K1 (99.25% Co) and K2 (98.30% Co) excluded from this assessment. Based on surveys of producers, merchants and consumers. Assessed on Thursdays or closest business day.

99.6% Zambian: Weekly assessed US spot market price for cobalt, 99.6%, Zambian, thin/broken, electrolytic cathode,

minimum 99.6% Co, packed in 250 kg steel drums. Assessed in \$/lb, delivered, duty-paid US, delivery within 30 days, payment net-30 days. Based on surveys of producers, merchants and consumers. Assessed Thursdays or closest business day.

Indium

NY Dealer Indium: Price assessment is based on 99.99% minimum purity indium DDP US buyers, in minimum lots of 50kg, for delivery within 30 days, net-30 day payment terms.

Rhenium

NY Dealer: Weekly US spot market price assessment based on 69.4% Re contained (ammonium perrhenate), delivered to US customer works, quoted in \$/kg, basis shipment and payment within 30 days. Based on a weekly survey of merchants, producers and consumers. Assessed Thursdays or closest business day.

Selenium

NY Dealer: Weekly US spot market price assessment for selenium metal powder, minus 200 mesh, min. Se 99.5% DDP US buyer, 5-mt lots. Assessed in \$/lb, basis shipment and payment within 30 days. Assessed on Thursdays or closest business day based on a survey of merchants and producers.

REVISION HISTORY

August 2019: Updated to add US 5052 new bare scrap assessments and reflect the discontinuation of the Copper Grade A CIF R'dam, Copper Standard CIF R'dam, Copper Grade A CIF Italy, Lead 99.985% IW R'dam, Tin 99.90% IW R'dam and Tin 99.85% IW R'dam assessments effective August 1, 2019. Amended a typo in the description of the Aluminum Italy DDP, added codes for the \$-denominated assessments for Aluminum billet in Italy and Germany.

May 2019: Updated the shipment timing in the FOB Australia and CFR China alumina daily assessments to 14-60 days forward from the assessment day, from 30-60 days.

May 2019: Updated to introduce Battery Metals - Cobalt Sulfate DDP China.

May 2019: Platts completed an annual update to sections 1 to 6 of Platts Methodology and Specifications Guides in April 2019, and moved these sections into a standalone Methodology Guide. Updated to reflect discontinuation of CIF South Korea aluminum premium weekly assessment (MMAMX00 weekly, MMAMX03 monthly average). Updated to reflect discontinuation of Magnesium 98.8% FOB China weekly assessment (AAVSK00 weekly, AAVSK03 monthly, AAVSK16 yearly average). Updated to reflect discontinuation of Die Cast Alloy FOB China premium weekly assessment (MMDCH04 weekly, MMDCH03 monthly, MMDCH16 yearly average).

April 2019: Updated to reflect change in SHG Zinc premium assessment specs to FCA Rotterdam from in-warehouse Rotterdam (MMAYN04).

February 2019: Updated to clarify the specifications for Copper Standard Grade CIF Rotterdam (MMAOI04).

January 2019: Updated to introduce Battery Metals – Cobalt Sulfate and Lithium Spodumene and reflect discontinuation of

Copper Concentrate: Cu 30%, CIF Japan.

November 2018: Updated to remove in-warehouse Singapore premium for aluminum (MMAMY00, MMASW00, MMASW03).

October 2018: Updated to clarify the use of freight rates and location normalization in the US Aluminum Midwest Transaction premium assessment (MMAKE00). Methodology & Specifications Guide Annual Review was conducted and clarifications made.

September 2018: Updated to introduce Battery Grade Lithium Carbonate DDP China, Battery Grade Lithium Hydroxide CIF North Asia and Battery Grade Lithium Hydroxide DDP China assessments. Added Aluminum Billet 6060/6063 DDP Germany and Aluminum Billet 6060/6063 DDP Italy assessments.

August 2018: Updated to reflect introduction of US Midwest implied duty-unpaid assessments and associated normalization factors. Added Aluminum alloy 231 DDP Germany assessment

June 2018: Updated to reflect introduction of base month to CIF Japan Spot Premium P1020 assessment.

May 2018: Introduced Battery Metals heading and added Lithium Carbonate CIF North Asia assessment.

Updated to reflect change in China's VAT rate.

February 2018: Updated to reflect the discontinuation of the CIF Japan 553-grade silicon assessment after January 25, 2018, and the addition of the CIF New Orleans aluminum P1020 premium assessment in dollars/mt and cents/lb starting February 1, 2018, along with a CIF NOLA-Midwest premium differential in cents/lb.

November 2017: Methodology & Specifications Guide Annual Review was conducted and clarifications made. Updated to reflect change in calculation for Aluminum CIF China All-in

assessment.

October 2017: IWH Singapore premiums for copper, nickel & zinc discontinued.

April 2017: updated CIF Japan spot aluminum premium to reflect change in loading window under assessment.

January 2017: Changed methodology and specification for US zinc galvanizing premium to reflect SHG or CGG in "jumbo" form.

September 2016: Conducted annual review, updated to correct typographical errors, add missing specifications to assessments such as China alumina assessment, CIF Japan all-in prices and European cobalt. Updated language to ensure abbreviations for quantities and INCO terms were consistent throughout.

August 2016: Updated to reflect change in frequency of European lead, zinc and tin assessments to monthly. Updated to clarify aluminum CIF Japan quarterly premium assessment reflects cargoes shipping in the quarter for which contracts were negotiated and clarified publication norms for this assessment.

July 2016: Updated to show change of publishing day for weekly China magnesium ingot and magnesium alloy assessments to Fridays from Tuesdays.

June 2016: Updated the description for US A380 aluminum alloy to clarify standard practice with regard to assessment timings, changes during holiday weeks and A380 specifications.

February 2016: Updated to add new Mexican aluminum scrap price assessments for old cast, old sheet, UBCs and 6063 new bare extrusion scrap delivered Northeast Mexico.

January 2016: Discontinued US arsenic, cadmium and mercury assessments after the last price assessments on December 30, 2015. Added new price assessments for 6022 new bare aluminum scrap delivered US Midwest. Amended the

specification for US 6063 scrap to new bare extrusion scrap, plus added daily calculated all-in value.

December 2015: Updated ex-works China alumina price assessment specification to basis ex-works Shanxi instead of ex-works Henan.

November 2015: Updated to remove the discontinued C&F China Western and C&F China Russian aluminum price assessments and to add the new CFR China All-in Import Price. Changed time stamp on the India 995 Gold Premium to 1700 IST.

September 2015: Methodology guide updated to correct the omission of Ruthenium from the detailed specifications and other typographical errors such as frequency of in-warehouse Singapore premiums and lack of timestamp on Australian alumina.

August 2015: Methodology guide was updated to add new

assessment for US used lead-acid batteries picked up US Northeast, and to clarify the Midwest region for the US Midwest lead-acid batteries assessment.

July 2015: Updated to add CIF Korea spot aluminum premium assessment and to clarify that the In-warehouse Singapore aluminum premium is assessed weekly.

May 2015: This methodology guide was updated to show changes to the frequency and methodology for US Aluminum Market price assessment.

April 2015: This methodology guide was updated to show change in methodology for US Aluminum Transaction P1020 premium and discontinuation of the US osmium price assessment.

February 2015: This methodology guide was updated to include further description of Platts' processes and practices in survey assessment environments. Launch of Platts Gold Premium 995

India – PGPI995 – with corresponding methodology included in this document. This daily assessment reflects the India physical spot market premium/discount to the international spot rates for 99.5% Gold, in kilo bar form, DDP Ahmadabad secure vault within 2 days, \$/troy oz.

January 2015: Platts updated the Metals Methodology and Specifications guide to remove some Asian price assessments that were discontinued as of December 31, 2014 and to update the US Aluminum Transaction premium typical freight range.

July 2014: Platts revamped all Metals Methodology and Specification guides, including its Nonferrous guide, in July 2014. This revamp was completed to enhance the clarity and usefulness of all guides, and to introduce greater consistency of layout and structure across all published methodology guides. Methodologies for market coverage were not changed through this revamp, unless specifically noted in the methodology guide itself.