

Specifications guide

Nonferrous

Latest update: March 2020

Definitions of the trading locations for which Platts publishes indexes or assessments	2
Aluminum Chain	2
Base metals	14
Battery metals	18
Light/Minor Metals	19
Precious Metals	22
Production Statistics	23
 Revision history	 24

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. 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: 4:30 pm Singapore time

US and Mexico: 4:30 pm US Eastern time

Brazil: 4:00 pm Brazil time

Europe: 4:30 pm London time

ALUMINUM CHAIN

Assessment	Code	Mavg	Wavg	Qavg	Yavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
Alumina																
Alumina FOB Australia	MMWAU00	MMWAU03	MMWAU04		MMWAU16	Assessment	Daily	PMA05	Sandy calcined Metallurgical / Smelter Grade Alumina (SGA)	30,000 mt or 35,000 mt	max 12% -45 microns , min 88% +45 microns	FOB	Kwinana, Bunbury	Shipment 14-60 days	LC 30 days, BL 30 days	\$/mt
Alumina FOB Brazil differential to FOB Australia	MMWAD04	MMWAD03			MMWAD16	Assessment	Weekly	PMA05	Sandy calcined Metallurgical / Smelter Grade Alumina (SGA)	30,000 mt and 35,000 mt	max 12% -45 microns , min 88% +45 microns	FOB	Vila do Conde, Sao Luis	Shipment 14-60 days	LC 30 days, BL 30 days	\$/mt
Alumina Ex-Works China	MMXWC00	MMXWC03	MMXWC04		MMXWC16	Calculation	Daily	PMA05	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	Bags of 1.5 mt each.	Ex-works	Shanxi	Immediate loading (after payment), for payment delivery (by truck or rail) within 2-7 days.	Pre-payment	\$/mt
Alumina CFR China	MMALZ00	MMALZ03	MMALZ04		MMALZ16	Assessment	Daily	PMA05	Sandy calcined Metallurgical / Smelter Grade Alumina (SGA)	25,000-35,000 mt	max 12% -45 microns , min 88% +45 microns		Lianyungang	Shipment 14-60 days	30 days credit	\$/mt
Alumina CFR China Yuan/mt	MMACA00	MMACA03				Calculation	Daily	PMA05	Sandy calcined Metallurgical / Smelter Grade Alumina (SGA)	25,000-35,000 mt	max 12% -45 microns , min 88% +45 microns		Lianyungang	Shipment 14-60 days	30 days credit	Yuan/mt

ALUMINUM CHAIN

Assessment	Code	Mavg	Wavg	Qavg	Yavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
Calcined Petcoke																
Calcined Pet Coke FOB US Gulf Coast	MMXEVE00					Assessment	Monthly	PMA054	Anode-grade calcined petroleum coke	10,000 mt to 15,000 mt	NA	FOB US Gulf ports	FOB US Gulf ports	Loading within 30-60 days forward	0-30 days' US credit standard. per Normalized metric to payment ton (\$/30 days mt) after B/L	

ALUMINUM

US

Aluminum US Market	MMAAE00	MMAAE03	MMAAE04		MMAAE16	Assessment	Daily	PMA0413	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	DDP	Midwest consumer works	within 7-30 days	Net 30 days	Cents/lb
US Alum Transaction Premium	MMAKE00	MMAKE03	AADDJ00		MMAKE16	Assessment	Daily	PMA0413	Daily premium or discount to the London Metal Exchange cash price for spot physical 99.7% high-grade aluminum P1020A, LME spec, min 99.7% Al, max 0.1% Si, 0.2% 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	DDP	Midwest consumer works	within 7-30 days	Net 30 days	Cents/lb
US Alum Trans Prem \$/mt (conversion)	MMATP00	MMATP03	MMATP04			Calculation	Daily	PMA0413	99.7% high-grade P1020	min full 45,000 lb truckloads, typical 100-1,000 mt	ingot, low-profile sow or T-bars	DDP	Midwest consumer works	within 7-30 days	Net 30 days	\$/mt
Aluminum US Transaction	MMAAF10	MMAAF02	MMAAF01		MMAAF16	Assessment	Daily	PMA0413	99.7% high-grade P1020	min full 45,000 lb truckloads, typical 100-1,000 mt	ingot, low-profile sow or T-bars	DDP	Midwest consumer works	within 7-30 days	Net 30 days	Cents/lb
US Aluminum Net-Cash Prem	MMACN00	MMACN03	MMACN04		MMACN16	Assessment	Daily	PMA0413	99.7% high-grade P1020	min full 45,000 lb truckloads, typical 100-1,000 mt	ingot, low-profile sow or T-bars	DDP	Midwest consumer works	within 7-30 days	net cash	Cents/lb
Aluminum P1020 US Import Duty cents/lb	MMOEUE00	MMOEUE03	MMOEUE04		MMOEUE16	Calculation	Daily	PMA0413	99.7% high-grade P1020	Not specified	ingot, low-profile sow or T-bars	Not specified	Not specified	Not specified	Not specified	Cents/lb
Aluminum P1020 US Import Duty \$/mt	MMOHUE00	MMOHUE03	MMOHUE04		MMOHUE16	Calculation	Daily	N/A	99.7% high-grade P1020	Not specified	ingot, low-profile sow or T-bars	Not specified	Not specified	Not specified	Not specified	\$/mt
Aluminum P1020 MW US Transaction Premium (Implied Duty-Unpaid) delivered US Midwest	MMOFUE00	MMOFUE03	MMOFUE04		MMOFUE16	Calculation	Daily	PMA0413	99.7% high-grade P1020	min full 45,000 lb truckloads, typical 100-1,000 mt	ingot, low-profile sow or T-bars	DDU	Midwest consumer works	within 7-30 days	Net 30 days	Cents/lb
Aluminum P1020 MW US Transaction Premium (Implied Duty-Unpaid) delivered US Midwest \$/mt	MMOIUE00	MMOIUE03	MMOIUE04		MMOIUE16	Calculation	Daily	N/A	99.7% high-grade P1020	min full 45,000 lb truckloads, typical 100-1,000 mt	ingot, low-profile sow or T-bars	DDU	Midwest consumer works	within 7-30 days	Net 30 days	\$/mt

ALUMINUM CHAIN

Assessment	Code	Mavg	Wavg	Qavg	Yavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
Aluminum P1020 Transaction Price (Implied Duty-Unpaid) delivered US Midwest	MMOGU00	MMOGU03	MMOGU04		MMOGU16	Calculation	Daily	PMA0413	99.7% high-grade P1020	min full 45,000 lb truckloads, typical 100-1,000 mt	ingot, low-profile sow or T-bars	DDU	Midwest consumer works	within 7-30 days	Net 30 days	Cents/lb
Aluminum P1020 Transaction Price (Implied Duty-Unpaid) delivered US Midwest \$/mt	MMOJU00	MMOJU03	MMOJU04		MMOJU16	Calculation	Daily	N/A	99.7% high-grade P1020	min full 45,000 lb truckloads, typical 100-1,000 mt	ingot, low-profile sow or T-bars	DDU	Midwest consumer works	within 7-30 days	Net 30 days	\$/mt
Aluminum US P1020 Duty Freight Factor	AFLSB00					Assessment	Daily	PMA0413	99.7% high-grade P1020	Not specified	Not specified	Not specified	Not specified	Not specified	Not specified	Cents/lb
Aluminum US P1020 Duty Freight Factor \$/mt	AFLSA00					Assessment	Daily	PMA0413	99.7% high-grade P1020	Not specified	Not specified	Not specified	Not specified	Not specified	Not specified	\$/mt
Aluminum CIF New Orleans duty-unpaid premium	MMODU00	MMODU03	MMODU04		MMODU16	Assessment	Daily	PMA0413	99.7% high-grade P1020	1,000 mt to 30,000 mt, normalized to 10,000 mt	ingot, low-profile sow or T-bars	CIF, free out, duty-unpaid	New Orleans	Arrival 30-60 days	Cash against documents	\$/mt
Aluminum CIF New Orleans duty-unpaid premium cents/lb	MMNDU00	MMNDU03	MMNDU04		MMNDU16	Calculation	Daily	PMA0413	99.7% high-grade P1020	1,000 mt to 30,000 mt, normalized to 10,000 mt	ingot, low-profile sow or T-bars	CIF, free out, duty-unpaid	New Orleans	Arrival 30-60 days	Cash against documents	Cents/lb
Aluminum CIF NOLA-MW premium differential cents/lb	MMNOL00	MMNOL03	MMNOL04		MMNOL16	Calculation	Daily	PMA0413	99.7% high-grade P1020	1,000 mt to 30,000 mt, normalized to 10,000 mt	ingot, low-profile sow or T-bars	CIF, free out, duty-unpaid	New Orleans	Arrival 30-60 days	Cash against documents	Cents/lb
Aluminum 6 Month P1020 Ingot (Premium)	MMANJ04					Assessment	Thursday	PMA0413	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	MMAKC00	AAMD000			AAMD016	Assessment	Thursday	PMA0413	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

Latin America

Aluminum CIF Brazil premium duty-unpaid	MMABP04	MMABP03			MMABP16	Assessment	Friday	PMA0017	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, excl VAT	Major Brazilian ports	within 30-60 days	Net 30 days	\$/mt
Aluminum Brazil Premium DDP SE Brazil	MMABS04	MMABS03			MMABS16	Assessment	Friday	PMA0017	99.7% high-grade P1020	25-500 mt, 100 mt typical	99.7% Al purity, standard ingot, sow and T-Bars.	DDP excl VAT	Southeast Region	delivery within 30 days	Net 7 to net 10 days	\$/mt
Aluminum Brazil Market, DDP SE Brazil	MMADB04	MMADB03			MMADB16	Calculation	Friday	PMA0017	99.7% high-grade P1020	25-500 mt, 100 mt typical	99.7% Al purity, standard ingot, sow and T-Bars.	DDP excl VAT	Southeast Region	delivery within 30 days	Net 7 to net 10 days	\$/mt

Europe

Aluminum Good Western premium duty paid in warehouse Rotterdam	AALVE00	AALVH00	AALXJ00		AALVH16	Assessment	Daily	PMA421	min. 99.7% Al	Not specified	ingot	IW	Rotterdam	Prompt	0-30 days	\$/mt
--	---------	---------	---------	--	---------	------------	-------	--------	---------------	---------------	-------	----	-----------	--------	-----------	-------

ALUMINUM CHAIN

Assessment	Code	Mavg	Wavg	Qavg	Yavg	Type	Published Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment UOM	
Aluminum Good Western premium duty unpaid in warehouse Rotterdam	AALVI00	AALVK00	AALXK00		AALVK16	Assessment	Daily	PMA421	min. 99.7% Al	Not specified	ingot	IW	Rotterdam	Prompt	0-30 days \$/mt
Aluminum Russian A7E premium duty unpaid in warehouse Rotterdam	AALVL00	AALVN00	AALXL00		AALVN16	Assessment	Daily	PMA421	min. 99.7% Al	Not specified	ingot	IW	Rotterdam	Prompt	0-30 days \$/mt
Aluminum Russian A7E premium FOB St Petersburg	AALV000	AALVQ00	AALXM00		AALVQ16	Assessment	Daily	PMA421	min. 99.7% Al	Not specified	ingot	FOB	St Petersburg	Prompt	0-30 days \$/mt
Aluminum Billet DDP Italy	ABITA04	ABITA03			ABITA16	Assessment	Friday	PMA4310	6060/6063 billet	50 mt or more	6060/6063 billet, 7-8" diameter	DDP	Italy	Within 60 days	Net 60 days \$/mt
Aluminum Billet DDP Germany	ABGEA04	ABGEA03			ABGEA05 ABGEA16	Assessment	Friday	PMA4310	6060/6063 billet	50 mt or more	6060/6063 billet, 7-8" diameter	DDP	Germany	Within 60 days	Net 30 days \$/mt
Aluminum Billet DDP Italy	ABITB04	ABITB03			ABITA05 ABITB16	Calculation	Friday	N/A	6060/6063 billet	50 mt or more	6060/6063 billet, 7-8" diameter	DDP	Italy	Within 60 days	Net 60 days Eur/mt
Aluminum Billet DDP Germany	ABGEB04	ABGEB03			ABGEB16	Calculation	Friday	N/A	6060/6063 billet	50 mt or more	6060/6063 billet, 7-8" diameter	DDP	Germany	Within 60 days	Net 30 days Eur/mt
Asia															
CIF Japan Spot Premium	MMANA00	AAMDP00	MMANB04		AAMDP16	Assessment	Daily	PMA107	P1020A LME spec, min 99.7% Al, max 0.1% Si, 0.2% Fe, 0.03% zinc, 0.04% gallium, 0.03% vanadium	Min 250 mt	25 kg ingot, sows, Tbars of other sizes		Yokohama, Nagoya, Osaka	Loading 15-60 days forward	Cash against documents or cash within 3 days of B/L \$/mt
CIF Japan Forward Quarter Premium	AAFGA00	AAFGB00	AAFGA04			Assessment	Daily	PMA107	P1020A LME spec, min 99.7% Al, max 0.1% Si, 0.2% Fe, 0.03% zinc, 0.04% gallium, 0.03% vanadium	Min 500 mt	25 kg ingot, sows, Tbars of other sizes		Yokohama, Nagoya, Osaka	Within calendar quarter	Cash against documents or cash within 3 days of B/L \$/mt
CIF Japan Fixed Price Equivalent (All-in)	MMJAL00	MMJAL03				Calculation	Daily	PMA419	LME cash settlement plus spot CIF Japan premium assessment	Min 250 mt	25 kg ingot, sows, Tbars of other sizes		Yokohama, Nagoya, Osaka	Loading 15-60 days forward	Cash against documents \$/mt
CIF Japan Quarter Fixed Price Equivalent (All-in)	MMJAQ00	MMJAQ03				Calculation	Daily	PMA419		Min 500 mt	25 kg ingot, sows, Tbars of other sizes		Yokohama, Nagoya, Osaka	Within calendar quarter	Cash against documents \$/mt
CFR China Import Price (All-in)	MMBAA00	MMBAA03	MMBAA04			Calculation	Daily	PMA107	All-in formula price for 99.7%	Not specified	Not specified	CFR	China	Spot	Not specified \$/mt
CFR China Import Price (All-in)	MMBAB00	MMBAB03				Calculation	Daily	PMA107	All-in formula price for 99.7%	Not specified	Not specified	CFR	China	Spot	Not specified Yuan/mt

SCRAP

Assessment	Code	Mavg	Wavg	Qavg	Yavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
Latin America																
Aluminum Cans Scrap Brazil Dom Prod FOT	SB01018					Assessment	Monday	N/A	Baled used beverage cans, to meet ISRI "taldon" specification	500-2,000 mt	NA	FOT	Southeast Brazil	2-4 weeks	At sight	Real/kg
Aluminum Castings Brazil Dom Prod FOT	SB01020					Assessment	Monday	N/A	New, clean, uncoated and unpainted, low copper aluminum scrap of two or more alloys. Grease and oil not to total more than 1%.	500-2,000 mt	NA	FOT	Southeast Brazil	2-4 weeks	At sight	Real/kg
Aluminum Profile Extrusion Brazil Dom Prod FOT	SB01022					Assessment	Monday	N/A	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.	500-2,000 mt	NA	FOT	Southeast Brazil	2-4 weeks	At sight	Real/kg
Aluminum old cast delivered NE Mexico pesos/kg	AAXXA04	AAXXA03			AAXXA16	Assessment	Thursday	PMA201	Old cast aluminum scrap with up to 5% contamination, minimal 88% recovery	Full truckload, 20 mt	NA	Delivered	Northeast Mexico	Within 30 days	Net 30 days	Pesos/kg
Aluminum old cast delivered NE Mexico cents/lb	AAXUA04	AAXUA03			AAXUA16	Calculation	Thursday	PMA201	Old cast aluminum scrap with up to 5% contamination, minimal 88% recovery	Full truckload, 20 mt	NA	Delivered	Northeast Mexico	Within 30 days	Net 30 days	Cents/lb
Aluminum old sheet delivered NE Mexico pesos/kg	AAXXB04	AAXXB03			AAXXB16	Assessment	Thursday	PMA201	Non-cast aluminum scrap items for consumption by secondary aluminum smelters to meet ISRI "taint/tabor" grade, containing 2-3% Fe	Full truckload, 20 mt	NA	Delivered	Northeast Mexico	Within 30 days	Net 30 days	Pesos/kg
Aluminum old sheet delivered NE Mexico cents/lb	AAXUB04	AAXUB03			AAXUB16	Calculation	Thursday	PMA201	Non-cast aluminum scrap items for consumption by secondary aluminum smelters to meet ISRI "taint/tabor" grade, containing 2-3% Fe	Full truckload, 20 mt	NA	Delivered	Northeast Mexico	Within 30 days	Net 30 days	Cents/lb
Aluminum UBCs delivered NE Mexico pesos/kg	AAXXC04	AAXXC03			AAXXC16	Assessment	Thursday	PMA201	Baled used beverage cans, to meet ISRI "taldon" specification.	Full truckload, 20 mt	NA	Delivered	Northeast Mexico	Within 30 days	Net 30 days	Pesos/kg
Aluminum UBCs delivered NE Mexico cents/lb	AAXUC04	AAXUC03			AAXUC16	Calculation	Thursday	PMA201	Baled used beverage cans, to meet ISRI "taldon" specification.	Full truckload, 20 mt	NA	Delivered	Northeast Mexico	Within 30 days	Net 30 days	Cents/lb
Aluminum 6063 new bare scrap delivered NE Mexico pesos/kg	AAXXD04	AAXXD03			AAXXD16	Assessment	Thursday	PMA201	6063 new bare scrap, free of paint, may be anodized -- may include press scrap with butts	Full truckload, 20 mt	NA	Delivered	Northeast Mexico	Within 30 days	Net 30 days	Pesos/kg
Aluminum 6063 new bare scrap del NE Mexico cents/lb	AAXUD04	AAXUD03			AAXUD16	Calculation	Thursday	PMA201	6063 new bare scrap, free of paint, may be anodized -- may include press scrap with butts	Full truckload, 20 mt	NA	Delivered	Northeast Mexico	Within 30 days	Net 30 days	Cents/lb
US																
US Alum Old Cast	AAFBJ00	AAFFN00	AAMOU00		AAFFN16	Assessment	Monday/ Thursday	PMA0300	Less than 1% Mg and Zn, low Fe, low contamination; minimum recovery rate 92%	Full truckload	NA	Delivered	Midwest	Within 30 days	Not specified	Cents/lb
US Alum Old Sheet	AAFBL00	AAFB000	AAMOT00		AAFB016	Assessment	Monday/ Thursday	PMA0300	Non-cast aluminum items for consumption by secondary aluminum smelters to meet ISRI "taint/tabor"	Full truckload	NA	Delivered	Midwest	Within 30 days	Not specified	Cents/lb
US Alum Mill-Grade Mixed Low Copper Clips (MLCCs)	AAFBP00	AAFBR00	AAMOQ00		AAFBR16	Assessment	Monday/ Thursday	PMA0300	Mixed-low copper clips able to be consumed by aluminum rolling mills, 1000, 3000, 5000, 6000 series only	Full truckload	NA	Delivered	Midwest	Within 30 days	Not specified	Cents/lb

SCRAP

Assessment	Code	Mavg	Wavg	Qavg	Yavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
US Alum Smlter-Grade MLCCs	AAFBT00	AAFBV00	AAFBU00		AAFBV16	Assessment	Monday/Thursday	PMA0300	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	Midwest	Within 30 days	Not specified	Cents/lb
US Alum Turnings	AAFCA00	AAFC00	AAMON00		AAFC16	Assessment	Monday/Thursday	PMA0300	Machine and tooling scrap for consumption by secondary aluminum smelters; high grade, clean and dry	Full truckload	NA	Delivered	Midwest	Within 30 days	Not specified	Cents/lb
US Low Grd Auto Shreds	AASS000	AASS003	AASS004		AASS016	Assessment	Monday/Thursday	PMA0300	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	Midwest	Within 30 days	Not specified	Cents/lb
US Hi Grd Auto Shreds	AASSP00	AASSP03	AASSP04		AASSP16	Assessment	Monday/Thursday	PMA0300	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	Midwest	Within 30 days	Not specified	Cents/lb
US Alum UBCs	AAFC00	AAMDC00			AAMDC16	Assessment	Thursday	PMA0413	Baled used beverage cans, to meet ISRI "taldon" specification	Full truckload	NA	Delivered	Midwest	Within 30 days	Not specified	Cents/lb
US Aluminum 6063 New Bare Extrusion Scrap Discount	AAFC00	AAMCZ00			AAMCZ16	Assessment	Friday	PMA0413	New bare 6063 extrusion scrap	Full truckload	NA	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
US Aluminum 6063 New Bare Extrusion Scrap	AAFCF00	AAXVZ03	AAXVZ04			Calculation	Daily	PMA0413	New bare 6063 extrusion scrap all-in value daily	Full truckload	NA	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
US Aluminum 6022 New Bare Scrap Discount	AAXVM04	AAXVM03			AAXVM16	Assessment	Thursday	PMA0413	New bare 6022 aluminum sheet scrap	Full truckload	Min thickness of 0.050 inches.Free of punchings less then half-inch in diameter	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
US Aluminum 6022 New Bare Scrap	AAXVM00	AAXVX03	AAXVX04			Calculation	Daily	PMA0413	New bare 6022 aluminum sheet scrap all-in value	Full truckload	Min thickness of 0.050 inches.Free of punchings less then half-inch in diameter	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
US Aluminum 5052 New Bare Scrap Discount	ABSDB04	ABSDB03			ABSDB16	Assessment	Thursday	PMA0413	New bare 5052 aluminum sheet scrap	Full truckload	Min thickness 0.015 inches (.38 mm). Free of punchings less than 1/2" (1.27 cm) in size.	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
US Aluminum 5052 New Bare Scrap	ABSDA00	ABSDA03	ABSDA04			Calculation	Daily	PMA0413	New bare 5052 aluminum sheet scrap	Full truckload	Min thickness 0.015 inches (.38 mm). Free of punchings less than 1/2" (1.27 cm) in size.	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
US Aluminum Painted Siding	AASNW02	AASNW03			AASNW16	Assessment	Thursday	PMA0413	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	Midwest	Within 30 days	Not specified	Cents/lb

SECONDARY ALLOYS

Assessment	Code	Mavg	Wavg	Qavg	Yavg	Type	Published Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM	
US																
Aluminum A380 alloy	MMAAD00	MMAAD02	MMAAD01		MMAAD16	Assessment	Monday/ Thursday	PMA0300	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	Full truckload	NA	Delivered	Midwest	Within 30 days	Net 30 to net 60 days	Cents/lb
Aluminum 319 alloy	MMAAC00	MMAAC02	MMAAC01		MMAAC16	Assessment	Monday/ Thursday	PMA0300	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	Midwest	Within 30 days	Net 30 to net 60 days	Cents/lb
Aluminum 356 alloy	MMAAB00	MMAAB02	MMAAB01		MMAAB16	Assessment	Monday/ Thursday	PMA0300	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	Midwest	Within 30 days	Net 30 to net 60 days	Cents/lb
Aluminum F132 alloy	MMAAA00	MMAAA02	MMAAA01		MMAAA16	Assessment	Monday/ Thursday	PMA0300	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	Midwest	Within 30 days	Net 30 to net 60 days	Cents/lb
Aluminum B390 alloy	FAALB00	FAALB03	FAALB04		FAALB16	Assessment	Monday/ Thursday	PMA0300	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	Midwest	Within 30 days	Net 30 to net 60 days	Cents/lb
MW US A413 alloy	MMWUS00	MMWUS03	MMWUS04		MMWUS16	Assessment	Monday/ Thursday	PMA0300	A413--Si 11-13%, Fe 1% max, Cu 0.6% max, Full truckload Mn 0.35%, Mg 0.1%, Ni 0.5%, Zn 0.5%, and Sn 0.15%.	Full truckload	NA	Delivered	Midwest buyer works	Within 30 days	Net 30 to net 60 days	Cents/lb
Europe																
Aluminum Alloy 226 DDP Germany	AALVT00	AALVU00			AALVU16	Assessment	Friday	PMA4310	226 LME Grade - DIN standard 1725	Full truckload	NA	Delivered	Works Germany	Prompt	Net 30 days	Eur/mt
Aluminum Alloy 231 DDP Germany	ABLVT04	ABLVT03			ABLVT16	Assessment	Friday	PMA4310	DIN standard 1706	Full truckload	NA	Delivered	Works Germany	Prompt	Net 30 days	Eur/mt
Asia																
Aluminum ADC12 EXW China	AAVSI00	AAVSI03			AAVSI16	Calculation	Tuesday	PMA810	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	Not specified	EXW	China	Not specified	Not specified	\$/mt
Aluminum ADC12 EXW China Yuan/mt	AAVSI02	AAVSI13				Assessment	Tuesday	PMA810	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	Not specified	EXW	China	Not specified	Not specified	Yuan/mt
Aluminum ADC12 FOB China	AAVSJ00	AAVSJ03			AAVSJ16	Assessment	Tuesday	PMA810	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	Not specified	FOB	China - Shanghai, Tianjin	Not specified	Not specified	\$/mt

Aluminum Chain

Alumina (Aluminum Oxide)

Market Close: 5:30 pm Singapore time (0930 GMT) daily for FOB Australia and CFR China; on Thursdays for FOB Brazil differential to FOB Australia.

Seaborne alumina (FOB Australia, FOB Brazil differential to FOB Australia, CFR China): The assessments reflect the following specifications: max SiO₂ 0.025%, max Fe₂O₃ 0.025%, max TiO₂ 0.007%, max Na₂O 0.55%, max ZnO 0.015%, max P₂O₅ 0.003%, max CaO 0.05%, max V₂O₅ 0.005%, max loss on ignition (300-1000 degrees C) 1%, max alpha phase (Alumina Alpha or Alpha content) 12%, specific surface area 60-80 m²/g.

FOB Australia assessments are based on FOB Australia indications. Pricing information from other locations like CFR China, Middle East or Russia, or FOB India may be netted back to FOB Australia basis using assessed spot freight rates for dry bulk carriers on the day of assessment. 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. The assessment reflects cargoes of 30,000 mt and 35,000 mt lot sizes loading from Bunbury and Kwinana. Lot sizes of 25,000 mt from other regions may be considered for the assessment and normalized to the equivalent of 30,000 mt and 35,000 mt lot size basis.

The FOB Brazil assessment represents the discount/premium (differential) for alumina in the Atlantic basin to the benchmark Platts Alumina FOB Australia daily assessment (MMWAU00). The differential assessment reflects cargoes of 30,000 mt and 35,000 mt, basis FOB Brazil in USD per metric ton. Material from

other countries in the Atlantic region may be price normalized to FOB Brazil. Cargoes of other sizes may be considered for the assessment after normalizing to the standard parameters.

Ex-works China: Platts normalizes all price information gathered from other major alumina producing Chinese provinces – Henan, Shandong, Guangxi, and Guizhou – back to an ex-works Shanxi basis.

Calcined Petcoke (CPC)

Calcined Petroleum Coke FOB US Gulf Coast: 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. In the absence of spot liquidity, Platts considers values where transactions would conclude for the benchmark grade. Negotiations on current-quarter or half-year contracts may be taken into account for trend purposes. Platts' global market analysis also takes into account spot bids/offers or trades basis CFR Europe, CFR Canada, CFR Middle East, CFR Russia or FOB US West Coast. These are 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.

Standard loadings are 10,000 mt to 15,000 mt; larger loadings of up to 25,000-45,000 mt may be price normalized.

The assessment reflects anode-grade calcined petroleum coke, suitable for aluminum smelters, in sponge form, excluding shot coke, 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).

The assessment is published on the last business day of the month.

Aluminum

US

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% P1020A ingot, low-profile sow or T-bars, basis delivery US Midwest, normalized to sow/T-bar shape. 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. Platts final published MWP assessment gives priority to transactions that have clearly been negotiated, concluded and reported as a premium, over a

derived premium value that is reported as a part of an original “all-in” trade. Premiums derived from an “all-in” transaction may also be normalized further when the underlying LME reference value may be unclear, only partially confirmed or irrelevant to the original “all-in” transaction. The assessment reflects the most widely tradable 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 Price: 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: MM0IU00; cts/lb: MM0FU00) 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: MM0JU00; cts/lb: MM0GU00) 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 derivatives 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 Association 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 Premium Rotterdam: \$/mt premium over LME cash for Western-origin 99.7% ingot meeting LME high grade specifications. Assessed on duty-paid and duty-unpaid basis in warehouse Rotterdam.

Russian A7E Duty-Unpaid Premium: \$/mt premium over LME cash for 99.7% Russian origin ingot on a duty-unpaid basis. Assessed on an FOB St. Petersburg and in warehouse Rotterdam basis.

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

Asia

CIF Japan Spot Premium: Daily assessment of the spot premium or discount to the London Metal Exchange cash settlement price for high-grade aluminum. The assessment reflects all origins, except Iran, India, Egypt and LME warehouses, in line with the market definition of Good Western material. 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 (industry-settled):

Industry-negotiated premium or discount to the LME price at time of shipment. The premium range reflects the majority of concluded quarterly contracts for a calendar quarter. Cargoes leave ports during the quarter for which the contract has been negotiated. The final value or range is published when a sufficient number of transactions have been concluded to reflect a repeatable value for the quarter in question. This is often the case by the first business day of the calendar quarter. Should contract negotiations extend beyond the first business day of the quarter, no quarterly 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.

Latin America

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 P1020, 99.7% Al purity, standard ingot, sow and T-Bars. Assessment basis CIF Brazil (to include major ports Santos/SP, Itajai/SC, Itaguaí/RJ and Sao Francisco do Sul/SC), duty unpaid, VAT not included (ICMS, PIS/Cofins and IPI), delivery within 30-60 days, 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.

Aluminum Premium, DDP SE Brazil: Weekly assessment of the premium or discount to the LME cash settlement price for spot physical high-grade aluminum P1020, 99.7% Al purity, standard ingot, sow and T-Bars. 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, prices for 25-500 mt parcels are normalized to typical order size of 100 mt. Other shapes, grades, locations, delivery periods, volumes and payment terms may be normalized to this standard specification.

Aluminum Brazil Market, DDP SE Brazil: Weekly assessment of the all-in delivered value of spot physical high-grade aluminum P1020, 99.7% Al purity, standard ingot, sow and T-Bars. 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, delivery periods, locations, volumes and payment terms may be normalized to this standard specification.

Aluminum Scrap

US

Old Cast: Aluminum castings for consumption by secondary aluminum smelters, to meet ISRI "tense" specification, 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.

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.

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.

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.

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.

High-grade auto shreds: Auto shreds generated through a heavy media-based separation process, to meet ISRI “twitch” specification, 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.

Low-grade auto shreds: Auto shreds generated through an eddy current based or hand separation process, to meet ISRI “tweak” specification, 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.

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 dealers/consolidators/brokers. Business that is reported as non-Midwest or FOT/FCA (picked up) is adjusted to reflect average US Midwest delivery.

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.

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.

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.

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 ISRI specifications. The price is assessed in cents per pound, taking into account spreads, outright values and percentages of the Platts Transaction price, normalized to spot business shipping within 30 days, delivered US 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. Deals delivered to non-Midwestern locations are normalized to a delivered Midwest basis. Latin America

Old cast delivered NE Mexico: Old cast aluminum scrap with up to 5% contamination, minimal 88% recovery. Delivered in northeastern Mexico (Nuevo Leon and Coahuila states), free of VAT (IVA) tax.

Old sheet delivered NE Mexico: Non-cast aluminum items for consumption by secondary aluminum smelters, ISRI “taint/tabor” grade, containing 2-3% Fe. Delivered in northeastern Mexico (Nuevo Leon and Coahuila states) free of VAT (IVA) tax.

UBCs delivered NE Mexico: Baled used beverage cans, ISRI “taldon” specification. Delivered in the northeastern Mexico (Nuevo Leon and Coahuila states) free of VAT (IVA) tax.

6063 new bare scrap delivered NE Mexico: 6063 new bare scrap, free of paint, may be anodized -- may include press scrap with butts. Delivered in the northeastern Mexico (Nuevo Leon or Coahuila states) free of VAT (IVA) tax.

Secondary Aluminum 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 tradable 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: <https://www.spglobal.com/platts/en/our-methodology/holiday>.

319, 356, F132, A413 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 Association specifications or typical market specifications for 319.1, 356.1, 332.2 (for F132), 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. F132 – 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. A413 – 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.

Europe

Aluminum Alloy 226, 231: Secondary aluminum alloys are assessed on a weekly basis on a Friday or closest prior business day in Eur/mt on a delivered German works basis 0-30 day payment terms, prompt delivery in full truck loads. Other qualities are considered and normalized back to Platts base standard specifications, subject to prevailing market

differentials. The 226 LME grade alloy is produced in conformity with GBD-ALSi9Cu3 as described in DIN standard 1725 (1986). The 231 alloy conforms to AlSi12(Cu) as described in DIN 1706.

Asia

ADC12 ex-works China: 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 and converted into a \$/mt value, 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: 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.

Base metals

Copper

NY Dealer Premium/Cathode: Typical market premium above

BASE METALS

Assessment	Code	Mavg	Wavg	Yavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
Copper															
Copper NY Delivered Premium Cathode	MMACP00	MMACP03		MMACP16	Assessment	Thursday	PMA350	Premium to COMEX spot for Grade 1 or Grade A copper cathodes	Not specified	Not specified	Delivered	Midwest	Within 30 days	Net-cash	Cents/lb
Copper US Transaction	MMCUT00	MMCUT03	MMCUT04	MMCUT16	Calculation	Daily	PMA680	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	Delivered	Midwest	Within 30 days	Net-cash	Cents/lb
Copper LME Premium C+F China	MMAMK00				Assessment	Daily	PMA106	99.95% min cathode, mostly of Chilean origin	Not specified	Not specified	C&F	China - Huangpu, Shanghai, Guangzhou, Hong Kong	Not specified	upon receipt of letter of credit, usually within one month following the transaction	\$/mt
Copper C+F China (All-in)	MMAMJ00		MMAMJ04		Calculation	Daily	PMA106	99.95% min cathode, mostly of Chilean origin	Not specified	Not specified	C&F	China - Huangpu, Shanghai, Guangzhou, Hong Kong	Not specified	upon receipt of letter of credit, usually within one month following the transaction	\$/mt
Copper C+F China Spot Yuan/mt (All-in)	MMCSC00	MMCSC03			Calculation	Daily	PMA106	99.95% min cathode, mostly of Chilean origin	Not specified	Not specified	C&F	China - Huangpu, Shanghai, Guangzhou, Hong Kong	Not specified	upon receipt of letter of credit, usually within one month following the transaction	Yuan/mt
Copper CIF China Fixed Price Equivalent (All-in)	MMCUC00	MMCUC03			Calculation	Daily	N/A	99.95% min cathode, mostly of Chilean origin	Not specified	Not specified	C&F	China - Huangpu, Shanghai, Guangzhou, Hong Kong	Not specified	upon receipt of letter of credit, usually within one month following the transaction	\$/mt
Copper Scrap															
Copper No1 Burnt Scrap Discount	MMACJ10	MMACJ02		MMACJ16	Assessments	Wednesday	PMA350	97-98% Cu	Min truckload	wire, pipe and tubing	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
Copper No1 Bare Bright Discount	MMACL10	MMACL02		MMACL16	Assessments	Wednesday	PMA350	98-99% Cu	Min truckload	bricks, blocks	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
Copper No 2 Scrap Discount	MMACN10	MMACN02		MMACN06	Assessments	Wednesday	PMA350	94-96% Cu	Min truckload.	wire and 20 foot miscellaneous scrap	FAS	Major US ports	Within 3 months	Cash against documents	Cents/lb
Lead															
Lead US Premium	MMXCD00	MMXCD03		MMXCD16	Assessment	Tuesday	PMA306	99.97% pure corroding-grade lead, maximum 0.025% bismuth, max 0.0050% silver, max 0.0010% Cu, max 0.001 Fe	Min truckload	2,000-lb blocks (sows) or 55-100 lb pigs (ingots)	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
Lead NA Market	MMALF01	AADDN00	MMALF04	MMALF16	Calculation	Daily	PMA306	99.97% pure corroding-grade lead, maximum 0.025% bismuth, max 0.0050% silver, max 0.0010% Cu, max 0.001 Fe	Min truckload	2,000-lb blocks (sows) or 55-100 lb pigs (ingots)	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb

BASE METALS

Assessment	Code	Mavg	Wavg	Yavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
Lead Scrap															
Lead-acid batteries, used US Midwest (Weekly range)	MMLAA04	MMLAA03		MMLAA16	Assessment	Tuesday	PMA306	50% lead-acid, starter lighter ignition automotive batteries	Min truckload		Picked-up	US Midwest	30-day delivery	Net 30 days	Cents/lb
Lead-acid batteries, used US Northeast (Weekly range)	MMLAB04	MMLAB03			Assessment	Tuesday	PMA306	50% lead-acid, starter lighter ignition automotive batteries	Min truckload		Picked-up	US Northeast	30-day delivery	Net 30 days	Cents/lb
ZINC															
US															
Zinc MW SHG Premium	MMAYH00	MMAYH03			Assessment	Thursday	PMA306	Special high grade zinc	Min truckload, typical 200-400 mt		Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
Zinc NA SHG (All-in)	MMABD10	MMABD02	MMABD01	MMABD16	Calculation	Daily	PMA306	All-in daily price for special high-grade zinc, LME cash converted into cents/lb plus weekly premium	Min truckload, typical 200-400 mt		Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
Zinc US Dealer SHG	MMABF10				Assessment	Thursday	PMA306	All-in weekly price for special high-grade zinc	Min truckload, typical 200-400 mt		Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
Zinc US Galvanizer Premium	MMAYI00				Assessment	Thursday	PMA306	Special high-grade zinc or continuous galvanizing grade zinc in jumbo form	1-2 railcars, or 4-9 truckloads	W 2426 lb (1100 kg), L 31.5" (80 cm), D 20" (50 cm), H 20" (50 cm)	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
Zinc NA Galvanizer (All-in)	MMABI10	MMABI02	MMABI01	MMABI16	Calculation	Daily	PMA306	All-in price for special high-grade zinc, LME plus premium	1-2 railcars, or 4-9 truckloads		Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
Europe															
Zinc (SHG) FCA Rotterdam Premium	MMAYN04				Assessment	Monthly	PMA416	Premium or discount to the LME cash price for special high grade zinc	Minimum truckload	Not specified	FCA	Rotterdam	Prompt delivery	0-60-day terms	\$/mt
Zinc (SHG) FCA Rotterdam	MMALC00				Calculation	Monthly	PMA416	All-in price for special high-grade zinc, LME plus premium	Minimum truckload	Not specified	FCA	Rotterdam	Prompt delivery	0-60-day terms	\$/mt
Zinc Secondary Alloys															
US Zinc Alloy No 3 (All-in)	MMABH10	MMABH02	MMABH01	MMABH16	Calculation	Daily	PMA306	All-in price for US zinc No. 3 Alloy	Min truckload, typical 100-250 mt	Not specified	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
US Zinc MW Alloy No. 3 Premium	MMAYJ00				Assessment	Thursday	PMA306	Premium or discount to LME cash price for zinc No. 3 Alloy	Min truckload, typical 100-250 mt	Not specified					Cents/lb
Tin															
Tin NY Dealer	MMAAW10	MMAAW02	MMAAW01	MMAAW16	Assessment	Monday/Thursday	PMA309	New York Grade A tin	Min truckload	Not specified	Ex-dock, duty paid		Spot	Not specified	Cents/lb
Nickel															
US															
Nickel US Cathode Premium Spot	MMAZM04				Assessment	Thursday	N/A	99.8% Ni	Not specified	4x4 cut cathodes	Delivered	Midwest	within 30 days	Net 30 days	Cents/lb

BASE METALS

Assessment	Code	Mavg	Wavg	Yavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
Nickel US Melt Premium Spot	MMAZI04	MMAZJ03			Assessment	Thursday	N/A	99.8% Ni	Not specified	cathode and other forms	Delivered	Midwest	within 30 days	Net 30 days	Cents/lb
Nickel Plate Premium Spot US	MMAZK04	MMAZL03			Assessment	Thursday	N/A	99.8% Ni	Not specified	full plate uncut cathode	Delivered	Midwest	within 30 days	Net 30 days	Cents/lb
Nickel NY Dealer Cathode (All-in)	MMAAQ00	MMAAQ03		MMAAQ16	Calculation	Thursday	PMA401	99.8% Ni	Not specified	4x4 cut cathodes	Delivered	Midwest	within 30 days	Net 30 days	\$/lb
Nickel NY Dealer Melt (All-in)	MMAAS00	MMAAS03		MMAAS16	Calculation	Thursday	PMA402	99.8% Ni	Not specified	cathode and other forms	Delivered	Midwest	within 30 days	Net 30 days	\$/lb
Nickel NY Dealer Plate (All-in)	MMAAU00				Calculation	Thursday	PMA403	99.8% Ni	Not specified	full plate uncut cathode	Delivered	Midwest	within 30 days	Net 30 days	\$/lb
Europe															
Nickel Briquettes Premium Rotterdam	AALWJ00	AALWK00			Assessment	Friday	PMA415	LME grade min. 99.8% Ni	Not specified	Briquettes	IW	Rotterdam	within 30 days	Not specified	\$/mt
Nickel Plate Premium Rotterdam	MMAV004				Assessment	Friday	PMA415	LME grade min. 99.8% Ni	Not specified	4x4" cut cathodes	IW	Rotterdam	within 30 days	Not specified	\$/mt
Nickel European Plating	MMAVR00				Calculation	Friday	PMA415		Not specified	Not specified	Not specified	Not specified	Not specified	Not specified	\$/mt
Nickel Russian Premium Rotterdam	MMAVP04				Assessment	Friday	PMA415	LME grade min. 99.8% Ni	Not specified	full plate uncut cathode	IW	Rotterdam	within 30 days	Not specified	\$/mt
Nickel Russian Cathode	MMAVN04				Calculation	Friday	PMA415		Not specified	Not specified	Not specified	Not specified	Not specified	Not specified	\$/mt

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: 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 credit, usually within one month following the transaction.

Copper Scrap

No. 1 Burnt Scrap: US-delivered burnt wire, including wire, pipe and tubing, discount/premium spread to the COMEX copper active month. Normalized to delivered US Midwest basis.

No. 1 Bare Bright Scrap: US-delivered bare bright scrap, in bricks or blocks, discount/premium spread to the COMEX copper active month. Normalized to delivered US Midwest basis.

No. 2 Scrap: US-delivered clean No. 2 scrap (94-96% Cu), including wire and miscellaneous scrap, discount/premium spread to the COMEX copper active month. Normalized to delivered FAS major US ports.

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. Minimum quantity one truckload (42,000-44,000 lb), typical order size one to five truckloads.

North American Lead Market Price: Current day's LME lead cash settlement price plus the weekly US premium.

Lead 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. Suitable for delivery to secondary smelters. 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. Input from scrap yards will also be considered for trend purposes.

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. Suitable for delivery to secondary smelters. 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. Input from scrap yards will also be considered for trend purposes.

Zinc

US

Midwest SHG premium: Weekly assessment of the spot premium or discount to LME cash settlement price for special-high-grade zinc, normalized to a delivered US Midwest

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

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.

North American Galvanized (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.

Alloy No. 3 premium: Weekly assessment of the premium or discount to the London Metal Exchange cash settlement price for No. 3 zinc alloy.

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

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 payment terms, prompt delivery. 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

US

Cathode/Melt/Plate Spot: Premium/discount to LME cash for nickel 4x4 inch cut cathodes, full plate uncut cathodes and other forms. LME grade minimum 99.8% Ni. In addition to differentials Platts also publishes corresponding outright (all-in) prices.

Europe

Cathodes/Briquettes Spot Premiums: Premium/discount to LME cash for nickel 4x4 inch cut cathodes, briquettes and full plate uncut cathodes. LME grade minimum 99.8% Ni.

Battery Metals

BATTERY METALS

Assessment	Code	Mavg	Qavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
Lithium														
Lithium Carbonate CIF North Asia	BATLC04	BATLC03	BATLC05	Assessment	Friday	PMA8888	Min 99.5% Li2CO3	Containers 5-40 mt	Powder packed in bags	CIF	China / Japan / South Korea	15-60 days	Letter of Credit	\$/mt
Lithium Carbonate CIF North Asia (import parity)	BATCP04	BATCP03	BATCP05	Calculation	Friday	PMA8888	Min 99.5% Li2CO3	Containers 5-40 mt	Powder packed in bags	CIF	China / Japan / South Korea	15-60 days	Letter of Credit	Yuan/mt
Lithium Carbonate DDP China	BATCA04	BATCA03	BATCA05	Assessment	Friday	PMA8888	Min 99.5% Li2CO3	Min 1 truckload	Powder packed in bags	DDP	China	Within 14 days	Cash or LC	Yuan/mt
Lithium Hydroxide CIF North Asia	BATLH04	BATLH03	BATLH05	Assessment	Friday	PMA8888	Min 56.5% LiOH H2O	Containers 5-150 mt	Powder packed in bags	CIF	China / Japan / South Korea	15-60 days	Letter of Credit	\$/mt
Lithium Hydroxide CIF North Asia (import parity)	BATHP04	BATHP03	BATHP05	Calculation	Friday	PMA8888	Min 56.5% LiOH H2O	Containers 5-150 mt	Powder packed in bags	CIF	China / Japan / South Korea	15-60 days	Letter of Credit	Yuan/mt
Lithium Hydroxide DDP China	BATHY04	BATHY03	BATHY05	Assessment	Friday	PMA8888	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			Assessment	Monthly	PMA8888	Min 6% Li2O	Min 1,000 mt	Concentrate	FOB	Australia	Within 30 days	Letter of Credit	\$/mt
Cobalt Sulfate														
Cobalt Sulfate CIF North Asia	BATC004	BATC003	BATC005	Assessment	Thursday	PMA8890	Min 20.5% Co	Containers 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	Assessment	Thursday	PMA8890	Min 20.5% Co	Min 1 truckload	Powder packed in bags	DDP	China	Within 14 days	Cash or LC	Yuan/mt

Lithium

Lithium Carbonate CIF North Asia: Weekly assessment of the physical spot market price for minimum 99.5% purity battery grade lithium carbonate. Other qualities are considered, but may be normalized back to Platts base standard specifications, subject to prevailing market differentials.

Lithium Carbonate DDP China: Weekly assessment of the physical spot market price for minimum 99.5% purity battery grade lithium carbonate. Other qualities are considered, but may be normalized back to Platts base standard specifications, subject to prevailing market differentials.

Lithium Hydroxide CIF North Asia: Weekly assessment of the physical spot market price for minimum 56.5% purity battery grade lithium hydroxide. Other qualities are considered, but

may be normalized back to Platts base standard specifications, subject to prevailing market differentials.

Lithium Hydroxide DDP China: Weekly assessment of the physical spot market price for minimum 56.5% purity battery grade lithium hydroxide. Other qualities are considered, but may be normalized back to Platts base standard specifications, subject to prevailing market differentials.

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. 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 Sulfate

Cobalt Sulfate CIF North Asia: Weekly assessment of the physical spot market for cobalt sulfate with a minimum 20.5% cobalt content. Other qualities are considered, but may be normalized back to Platts base standard specifications, subject to prevailing market differentials.

Cobalt Sulfate DDP China: Weekly assessment of the physical spot market for cobalt sulfate with a minimum 20.5% cobalt content. Other qualities are considered, but may be normalized back to Platts base standard specifications, subject to prevailing market differentials.

LIGHT/MINOR METALS

Assessment	Code	Mavg	Qavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
Magnesium														
Magnesium US Die Cast Alloy Transaction	MMAHR00	MMAHR03	MMAHR16	Assessment	Thursday	PMA368	AZ91D, AM50 or AM60 on-spec diecast alloys	Full 40,000 lb truckload	Ingots, sow or T-bars	Delivered	US customer works	Delivery within 30 days	Net 30 or Net 60 days	Cents/lb
Magnesium US Spot Western	MMAHM00	MMAHM03	MMAHM16	Assessment	Thursday	PMA368	Min 99.8% pure, ASTM Grade 9980A	Min full 40,000 lb truckload	Ingots, sow or T-bars	Delivered	US customer works	Delivery within 30 days	Net 30 days	Cents/lb
Magnesium US Dealer Import	MMAHQ00	MMAHQ03	MMAHQ16	Assessment	Thursday	PMA368	Min 99.8% pure, non-oxidized	Min full 40,000 lb truckload	Ingots, sow or T-bars	Delivered	US customer works	Delivery within 30 days	Net 30 days	Cents/lb
Magnesium Europe Free Market	MMAIZ00			Assessment	Thursday	PMA368	99.9% pure, unoxidized	Not specified	Ingots, sow or T-bars	IW	Rotterdam, duty unpaid	Shipment within 30 days	Not specified	\$/mt
Silicon														
Silicon 553 grade delivered US Midwest	MMAJM00	MMAJM03	MMAJM16	Assessment	Wednesday	PMA407	Min 98.5% Si, max 0.5% iron, max 0.3% Ca, 0.2-0.5% Al	Three truckloads	4-inch lumps, in bulk or 2,000-3,000 lb supersacks	Delivered	Midwest	Delivery within 30 days	Net 30 days	Cents/lb Si contained
Silicon 553 grade in-warehouse EU	AAIUT00	MMAZH03		Assessment	Thursday	PMA407	98.5% Si, max 0.5% Fe, max 0.3% Ca, 0.2-0.5% Al	Three truckloads	Lumps 50-100 mm, in bulk 1 mt big bags	IW/EXW	EU/at ports, duty-paid	Delivery within 60 days	Net-30 days	Eur/mt
Silicon 553 grade FOB China	MMAJF00	MMAJF03	MMAJF16	Assessment	Thursday	PMA407	98.5% Si, max 0.5% Fe, max 0.3% Ca, 0.2-0.5% Al	Min 20mt	Lumps 50-100mm, in bulk 1 mt big bags	FOB	Main Chinese ports	Loading within 30 days	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														
Titanium 0.5% US Turning	MMAJZ00	MMAJZ03	MMAJZ16	Assessment	Thursday	PMA371	90% Ti, 6% Al, 4% V, 0.5% tin	Full truckload 40,000 lb	Not specified	DDP	US	Delivery within 30 days	Net 30 days	\$/lb
Titanium 0.5% European Turning	MMAJY00			Assessment	Thursday	PMA371	90% Ti, 6% Al, 4% V, 0.5% tin	Full container load - 20 mt	Not specified	DDP	EU	Delivery within 30 days	Net 30 days	\$/lb
Minor Metals														
Antimony NY Dealer	MMACY00	MMACY03	MMACY16	Assessment	Tuesday	PMA359	99.65% min, 0.15% max arsenic	5-mt lots	Ingots	DDP	US buyer's works	Shipment within 30 days	Net 30 days	\$/lb
Bismuth NY Dealer	MMAA00	MMAA03		Assessment	Tuesday	PMA359	Min 99.99%	1 mt minimum	Not specified	DDP	US buyer's works	Shipment within 30 days	Net 30 days	Cents/lb
Cobalt 99.8% European	MMAIK00			Assessment	Thursday	PMA375	Min 99.8% Co	1-5 mt	1"x1" cut cathodes	DDP/IW	European buyer's works	Shipment within 30 days	Net 30 days	\$/lb
Cobalt US Spot Cathode	MMAE000	MMAE003	MMAE016	Assessment	Thursday	PMA375	99.8% Co	1-5 mt	1 inch cathodes and/or roundelles	DDP	US	Shipment within 30 days	Net 30 days	\$/lb

LIGHT/MINOR METALS

Assessment	Code	Mavg	Qavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
Cobalt Russian	MMANL04			Assessment	Thursday	PMA375	Min 99.3%-99.35% Co	1-5 mt	12-15 kg ingots	DDP	US	Shipment within Net 30 days		\$/lb
Cobalt Zambian	MMAKF00			Assessment	Thursday	PMA375	99.6% Co	1-5 mt	broken cathodes	DDP	US	Shipment within Net 30 days		\$/lb
Indium MW NY Dealer	MMAKI00	MMAKI03		Assessment	Tuesday	PMA362	99.99% min	Min lots 50 kg	Not specified	DDP	US	Shipment within Net 30 days		\$/kg
Rhenium MW NY Dealer	AAGTD00	AAGTE00		Assessment	Tuesday	PMA362	69.4% Re contained (ammonium perrhenate)	Not specified	Not specified	DDP	US	Shipment within Net 30 days		\$/kg
Selenium MW NY Dealer	MMADL00	MMADL03	MMADL16	Assessment	Tuesday	PMA362	99.50%	5-mt lots	Not specified	DDP	US	Shipment within Net 30 days		\$/lb
Tungsten US Spot Ore	MMAHA00			Assessment	Thursday	PMA410	65% WO3	Not specified	Not specified	DDP	US	Shipment within Net 30 days		\$/lb W contained
Tungsten APT US	MAHC00	MAHC03		Assessment	Thursday	PMA410	88.5% WO3	Not specified	Not specified	DDP	US	Shipment within Net 30 days		\$/STU

Light/Minor metals

Cobalt

European 99.8%: Weekly assessed spot price for min 99.8% cobalt, 1"x1" cut, electrolytic, cobalt cathodes, packed in 250 kg steel drums, four drums per wooden pallet, strapped to pallet. The price is assessed on an in-warehouse Europe basis.

US 99.8% Spot Cathode: Weekly assessed US spot market price for cobalt, 99.8%, 1"x1" cut, electrolytic, cobalt cathodes, packed in 250 kg steel drums, four drums per wooden pallet, strapped to pallet. Delivered, duty-paid US. All Cuban-origin material excluded from US cobalt assessments.

Russian 99.3%: 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 12-15 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.

Zambian 99.6%: 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.

Magnesium

US Die Cast Alloy Transaction: Western specification, automotive-qualified AZ91D, AM50 or AM60 diecast alloys, 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.

US Spot Western: Western-origin pure min 99.8% Mg ingot, ASTM Grade 9980A, sold directly by primary producers. Duty paid, delivery within 30 days to US customer plant (Al alloying, chemical, and Mg ferrosilicon segments).

US Dealer Import: Non-oxidized, pure min 99.8% Mg ingot, sold by traders, typically from Russia, Kazakhstan or other origins. Duty paid, delivery within 30 days to US customer plant (Al alloying, chemical, and Mg ferrosilicon segments).

Europe Free Market: Dealer traded price for 99.9% pure, mostly Chinese or Russian origin, unoxidized Mg, delivery within 30 days in warehouse Rotterdam, duty unpaid.

Silicon

Silicon 553 grade, delivered US Midwest: US and imported 553 grade silicon metal, duty-paid delivered Midwest. In-warehouse or picked-up transactions normalized to delivered US Midwest. Fines normalized to stated lump specifications. Special packaging, payment terms, smaller or larger quantities to be normalized to meet stated specifications and quantity.

Silicon, 553 grade, in-warehouse EU: EU origin and imported 553 grade silicon metal, duty-paid EU main ports, producer plants and major EU warehousing hubs. Reported delivered transactions normalized back to in-warehouse basis. Special packaging, payment terms, smaller or larger quantities to be

normalized to meet stated specifications and quantity.

Silicon 553 grade, FOB China: Chinese origin and imported 553 grade silicon metal, FOB main Chinese sea ports loaded on oceangoing vessel or packed in seagoing 20-ft or 40-ft containers and customs sealed, export tariff-paid. Special packaging, payment terms and other quantities to be normalized to meet stated specifications and quantity.

Titanium

US Turnings 0.5%: US unprocessed turnings, delivered US, duty paid.

European Turnings 0.5%: US- or European-generated turnings, delivered Europe, duty paid.

Antimony

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

Bismuth

NY Dealer: Weekly assessment for min 99.99% purity, prompt delivery DDP US buyer within 30 days, net 30 terms.

Indium

MW NY Dealer: 99.99% minimum purity indium DDP US, in minimum lots of 50kg.

Rhenium

MW NY Dealer: 69.4% Re contained (ammonium perrhenate), DDP US.

Selenium

MW NY Dealer: Selenium metal powder, minus 200 mesh, min. Se 99.5% DDP US, 5-mt lots.

For all other assessment specifications please refer to the table above.

PRECIOUS METALS

Assessment	Code	Mavg	Qavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
Palladium NY Dealer	MMABV00	MMABV03	MMABV06,MMABV16	Assessment	Thursday	PMA356	99.95%	Not specified	Ingot or sponge	DDP	US	Within 30 days	Net 10 days or less	\$/oz
Platinum NY Dealer	MAHX00	MAHX03	MAHX06,MAHX16	Assessment	Thursday	PMA356	99.95%	Not specified	Ingot or sponge	DDP	US	Within 30 days	Net 10 days or less	\$/oz
Rhodium NY Dealer	MAID00	MAID03	MAID06,MAID16	Assessment	Thursday	PMA356	99.90%	Not specified	Sponge	DDP	US	Within 30 days	Net 10 days or less	\$/oz
Ruthenium NY Dealer	MAIH00			Assessment	Thursday	PMA353	99.90%	Not specified	Sponge	DDP	US	Within 30 days	Net 10 days or less	\$/oz
Iridium NY Dealer	MAIJ00			Assessment	Thursday	PMA353	99.90%	Not specified	Sponge	DDP	US	Within 30 days	Net 10 days or less	\$/oz

Precious metals

Palladium

NY Dealer: 99.95% purity palladium, in ingot or sponge form, DDP US within 30 days, max net-10 day payment, \$/oz.

Platinum

NY Dealer: 99.95% platinum metal, in ingot or sponge form, DDP US within 30 days, max net-10 day payment, \$/oz.

Rhodium

NY Dealer: 99.9% purity rhodium, in sponge form, DDP US within 30 days, max net-10 day payment, \$/oz.

Ruthenium

NY Dealer: 99.9% ruthenium metal, in sponge form, DDP US within 30 days, max net-10 day payment terms, \$/oz.

Iridium

NY Dealer: Min. 99.9% iridium purity, in sponge form, DDP US within 30 days, max net-10 day payment terms, in \$/oz.

PRODUCTION STATISTICS

Description	Code	Type	Published	Page	UOM
IAI PrimAlum Africa Prod Mo	MMPAF00	Third-party data	Monthly	PMA715	'000 mt of primary Aluminum
IAI PrimAlum Asia Prod Mo	MMPAS00	Third-party data	Monthly	PMA715	'000 mt of primary Aluminum
IAI PrimAlum China Prod Dly Avg	MMPCD00	Third-party data	Monthly	PMA715	'000 mt of primary Aluminum
IAI PrimAlum China Prod Mo	MMIAI00	Third-party data	Monthly	PMA715	'000 mt of primary Aluminum
IAI PrimAlum E/C Eur Prod Mo	MMPEC00	Third-party data	Monthly	PMA715	'000 mt of primary Aluminum
IAI PrimAlum GAC/Gulf Prod Mo	MMPGF00	Third-party data	Monthly	PMA715	'000 mt of primary Aluminum
IAI PrimAlum LatAm Prod Mo	MMPLA00	Third-party data	Monthly	PMA715	'000 mt of primary Aluminum
IAI PrimAlum N.Amer Prod Mo	MMPNA00	Third-party data	Monthly	PMA715	'000 mt of primary Aluminum
IAI PrimAlum Oceania Prod Mo	MMPOC00	Third-party data	Monthly	PMA715	'000 mt of primary Aluminum
IAI PrimAlum W.Europe Prod Mo	MMPWE00	Third-party data	Monthly	PMA715	'000 mt of primary Aluminum
IAI PrimAlum World Prod Mo	MMPWT00	Third-party data	Monthly	PMA715	'000 mt of primary Aluminum
IAI PrimAlum World Prod Mo Avg TMT/Day	MMPDA00	Third-party data	Monthly	PMA715	'000 mt of primary Aluminum

* IAI production figures

REVISION HISTORY

March 2020: Addition of Alumina FOB Brazil differential to FOB Australia assessment

February 2020: Platts clarified the data treatment in the US Midwest Aluminum Methodology

December 2019: Clarified and amended the cargo sizes for Alumina FOB Australia assessment to 30,000 mt and 35,000 mt lots.

November 2019: Platts conducted annual review of the specifications guide and made clarifications and stylistic changes throughout. The changes included aligning specifications described in tables and the associated text, clearer labelling of sections, removal of duplication, assessments' launch dates and generic description of the methodology, which can be found in a standalone Platts Assessments Methodology guide. Platts also added previously omitted codes and their descriptions and removed the description of discontinued assessments, such as gold and MW oxide Transaction. Platts also clarified in the tables the frequency of publication of each price and the fixed page number for the Platts Metals Alert.

November 2019: Changed incoterm for Brazilian aluminum scrap assessments (UBCs, Castings, Profile) to FOT from delivered.

August 2019: Updated to add US 5052 new bare scrap assessments and reflect the discontinuation of the Copper Grade A CIF Rotterdam, Copper Standard CIF Rotterdam, 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.