

# Specifications Guide

## Global Nonferrous Metals

Latest update: November 2020

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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. All 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](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

More information on the Platts price assessment publication schedule can be found here: <https://www.spglobal.com/platts/en/our-methodology/holiday>.

### ALUMINUM CHAIN

Assessment	Code	Mavg	Wavg	Qavg	Yavg	Type	Published Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM	
<b>Alumina</b>																
Alumina FOB Australia	MMWAU00	MMWAU03	MMWAU04		MMWAU16	Assessment	Daily	PMA05	Sandy calcined Metallurgical / Smelter Grade Alumina (SGA)	30,000 mt and 35,000 mt bulk	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	MMWAD04	MMWAD03			MMWAD16	Assessment	Thursday	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 Yuan/mt	MMXCY00	MMXCY03	MMXCY04			Assessment	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	Loading within 7 days	Cash	Yuan/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	Loading within 7 days	Cash	\$/mt
Alumina CFR China	MMALZ00	MMALZ03	MMALZ04		MMALZ16	Assessment	Daily	PMA05	Sandy calcined Metallurgical / Smelter Grade Alumina (SGA)	30,000 mt and 35,000 mt bulk	max 12% -45 microns, min 88% +45 microns	CFR	Lianyungang	Shipment 14-60 days	30 days credit	\$/mt

**ALUMINUM CHAIN**

Assessment	Code	Mavg	Wavg	Qavg	Yavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
Alumina CFR China Yuan/mt	MMA0A00	MMA0A03				Calculation	Daily	PMA05	Sandy calcined Metallurgical / Smelter Grade Alumina (SGA)	30,000 mt and 35,000 mt bulk	max 12% -45 microns, min 88% +45 microns	CFR	Lianyungang	Shipment 14-60 days	30 days credit	Yuan/mt

**Calcined Petcoke**

Calcined Pet Coke FOB US Gulf Coast	MMXE00					Assessment	Monthly	PMA054	Anode-grade calcined petroleum coke	10,000 mt to 15,000 mt	NA	FOB	US Gulf ports	30-60 days forward	Net30-60 after B/L	\$/mt
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**ALUMINUM**

**US**

Aluminum US Market (All-in)	MMAAE00	MMAAE03	MMAAE04		MMAAE16	Assessment	Daily	PMA0413	Min 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 Aluminum Transaction Premium	MMAKE00	MMAKE03	AADDJ00		MMAKE16	Assessment	Daily	PMA0413	Daily premium or discount to the LME cash price for spot physical min 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 Transaction Premium \$(conversion)	MMATP00	MMATP03	MMATP04			Calculation	Daily	PMA0413	Min 99.7% high-grade P1020A	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 (All-in)	MMAAF10	MMAAF02	MMAAF01		MMAAF16	Assessment	Daily	PMA0413	Min 99.7% high-grade P1020A	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 Premium	MMACN00	MMACN03	MMACN04		MMACN16	Assessment	Daily	PMA0413	Min 99.7% high-grade P1020A	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	MMOE00	MMOE03	MMOE04		MMOE16	Calculation	Daily	PMA0413	Min 99.7% high-grade P1020A		ingot, low-profile sow or T-bars					Cents/lb
Aluminum P1020 US Import Duty \$/mt	MMOH00	MMOH03	MMOH04		MMOH16	Calculation	Daily	N/A	Min 99.7% high-grade P1020A		ingot, low-profile sow or T-bars					\$/mt
Aluminum P1020 MW US Transaction Premium (Implied Duty-Unpaid) delivered US Midwest	MMOF00	MMOF03	MMOF04		MMOF16	Calculation	Daily	PMA0413	Min 99.7% high-grade P1020A	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	MMOI00	MMOI03	MMOI04		MMOI16	Calculation	Daily	N/A	Min 99.7% high-grade P1020A	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	Min 99.7% high-grade P1020A	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	Min 99.7% high-grade P1020A	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 cents/lb	AFLSB00					Calculation	Daily	PMA0413	Min 99.7% high-grade P1020A							Cents/lb
Aluminum US P1020 Duty Freight Factor \$/mt	AFLSA00					Assessment	Daily	PMA0413	Min 99.7% high-grade P1020A							\$/mt
Aluminum CIF New Orleans duty-unpaid premium	MMODU00	MMODU03	MMODU04		MMODU16	Assessment	Daily	PMA0413	Min 99.7% high-grade P1020A	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	Min 99.7% high-grade P1020A	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	Min 99.7% high-grade P1020A	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	Min 99.7% high-grade P1020A	Min 25 mt	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 P1020A transaction price for primary, North American General Purpose 6063 billet, to Aluminum Assn. specifications	Min truckload	6063 billet, 7-8" diameter	Delivered	US Midwest	within 7-30 days	Net 30 days	Cents/lb
<b>Latin America</b>																
Aluminum CIF Brazil premium duty-unpaid	MMABP04	MMABP03			MMABP16	Assessment	Friday	PMA0017	Min 99.7% high-grade P1020A	500-2,000 mt, 2,000 mt typical	standard ingot, sow and T-bars	CIF, duty-unpaid, excl VAT	Major Brazilian ports	within 30-60 days	Cash against documents	\$/mt
Aluminum Brazil Premium DDP SE Brazil	MMABS04	MMABS03			MMABS16	Assessment	Friday	PMA0017	Min 99.7% high-grade P1020A	25-500 mt, 100 mt typical	standard ingot, sow and T-bars	DDP excl VAT	Southeast Brazil	delivery within 30 days	Net 7 to net 10 days	\$/mt
Aluminum Brazil Market, DDP SE Brazil (All-in)	MMADB04	MMADB03			MMADB16	Calculation	Friday	PMA0017	Min 99.7% high-grade P1020A	25-500 mt, 100 mt typical	standard ingot, sow and T-bars	DDP excl VAT	Southeast Brazil	delivery within 30 days	Net 7 to net 10 days	\$/mt
<b>Europe</b>																
Aluminum Good Western premium duty paid in-warehouse Rotterdam	AALVE00	AALVH00	AALXJ00		AALVH16	Assessment	Daily	PMA421	Min 99.7% purity	Typical 100-1,000 mt	ingot	IW	Rotterdam	Prompt	Net 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% purity	Typical 100-1,000 mt	ingot	IW	Rotterdam	Prompt	Net 30 days	\$/mt
Aluminum Billet DDP Italy	ABITA04	ABITA03			ABITA16	Assessment	Friday	PMA4310	6060/6063 billet	Min 50 mt	6060/6063 billet, 7-8" diameter	DDP	Italy	Within 60 days	Net 60 days	\$/mt
Aluminum Billet DDP Italy	ABITB04	ABITB03		ABITA05	ABITB16	Calculation	Friday	N/A	6060/6063 billet	Min 50 mt	6060/6063 billet, 7-8" diameter	DDP	Italy	Within 60 days	Net 60 days	Eur/mt
Aluminum Billet DDP Germany	ABGEA04	ABGEA03		ABGEA05	ABGEA16	Assessment	Friday	PMA4310	6060/6063 billet	Min 50 mt	6060/6063 billet, 7-8" diameter	DDP	Germany	Within 60 days	Net 30 days	\$/mt
Aluminum Billet DDP Germany	ABGEB04	ABGEB03			ABGEB16	Calculation	Friday	N/A	6060/6063 billet	Min 50 mt	6060/6063 billet, 7-8" diameter	DDP	Germany	Within 60 days	Net 30 days	Eur/mt
<b>Asia</b>																
CIF Japan Spot Premium	MMANA00	AAMDP00	MMANB04		AAMDP16	Assessment	Daily	PMA107	P1020A: 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, T-bars	CIF	Yokohama, Nagoya, Osaka	Loading 15-60 days forward	Cash against documents or cash within 3 days of B/L	\$/mt
CIF Japan Fixed Price Equivalent (All-in)	MMJAL00	MMJAL03				Calculation	Daily	PMA419	P1020A: 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, T-bars	CIF	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: 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, T-bars	CIF	Yokohama, Nagoya, Osaka	Within calendar quarter	Cash against documents or cash within 3 days of B/L	\$/mt
CIF Japan Quarter Fixed Price Equivalent (All-in)	MMJAQ00	MMJAQ03				Calculation	Daily	PMA419	P1020A: 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, T-bars	CIF	Yokohama, Nagoya, Osaka	Within calendar quarter	Cash against documents or cash within 3 days of B/L	\$/mt
CFR China Import Price (All-in)	MMBAA00	MMBAA03	MMBAA04			Calculation	Daily	PMA107	P1020A: min 99.7% Al, max 0.1% Si, 0.2% Fe, 0.03% zinc, 0.04% gallium, 0.03% vanadium	Not specified	Not specified	CFR	China	Spot	Not specified	\$/mt
CFR China Import Price (All-in)	MMBAB00	MMBAB03				Calculation	Daily	PMA107	P1020A: min 99.7% Al, max 0.1% Si, 0.2% Fe, 0.03% zinc, 0.04% gallium, 0.03% vanadium	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	
<b>Latin America</b>																
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, min 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, min 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
<b>US</b>																
US Aluminum 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	Net 30 days	Cents/lb
US Aluminum Old Sheet	AAFBL00	AAFBO00	AAMOT00		AAFBO16	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	Net 30 days	Cents/lb
US Aluminum Mill-Grade Mixed Low Copper Clips (MLCCs)	AAFBP00	AAFBR00	AAMQ000		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	Net 30 days	Cents/lb

**SCRAP**

Assessment	Code	Mavg	Wavg	Qavg	Yavg	Type	Published Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
US Alum Smelter-Grade MLCCs	AAFBT00	AAFVB00	AAFBU00		AAFVB16	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	Net 30 days	Cents/lb
US Aluminum Turnings	AAFCA00	AAFCC00	AAMON00		AAFCC16	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	Net 30 days	Cents/lb
US Low Grade 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	Net 30 days	Cents/lb
US High Grade 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, Ferrous Processing/SLC Recycling and Fort Wayne OmniSource Corp	Full truckload	NA	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
US Alum UBCs	AAFCD00	AAMDC00			AAMDC16	Assessment	Thursday	PMA0413 Baled used beverage cans, to meet ISRI "taldon" specification	Full truckload	NA	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	Net 30 days	Cents/lb
US Aluminum 6063 New Bare Extrusion Scrap Discount	AAFCE00	AAMCZ00			AAMCZ16	Assessment	Thursday	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 (All-in)	AAFCE00	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 than half-inch in diameter	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
US Aluminum 6022 New Bare Scrap (All-in)	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 than 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 (All-in)	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

**SECONDARY ALLOYS**

Assessment	Code	Mavg	Wavg	Qavg	Yavg	Type	Published Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
<b>US</b>															
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, 3-4% Cu; 0.50% Mn, 0.1% Mg, 0.35% Ni; 1% 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; 0.5% 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% Si; 0.6% Fe; 2-4% Cu; 0.2% Mn; 0.9-1.3% Mg; 0.1% Ni; 1% Zn; 0.2% 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% Fe max, 4-5% Cu, 0.5% Mn, 0.45-0.65% Mg, 0.1% Ni, 1.4% Zn and 0.2% Ti	Full truckload	NA	Delivered	Midwest	Within 30 days	Net 30 to net 60 days	Cents/lb
Aluminum A413 alloy	MMWUS00	MMWUS03	MMWUS04		MMWUS16	Assessment	Monday/Thursday	PMA0300 11-13% Si, 1% Fe max, 0.6% max Cu, 0.35% Mn, 0.1% Mg, 0.5% Ni, 0.5% Zn, 0.15% Sn.	Full truckload	NA	Delivered	Midwest	Within 30 days	Net 30 to net 60 days	Cents/lb
<b>Europe</b>															
Aluminum Alloy 226 DDP Germany	AALVT00	AALVU00			AALVU16	Assessment	Friday	PMA4310 226 LME Grade - DIN standard 1725	Full truckload	NA	DDP	Germany	Prompt	Net 30 days	Eur/mt
Aluminum Alloy 231 DDP Germany	ABLVT04	ABLVT03			ABLVT16	Assessment	Friday	PMA4310 DIN standard 1706	Full truckload	NA	DDP	Germany	Prompt	Net 30 days	Eur/mt
<b>Asia</b>															
Aluminum ADC12 EXW China	AAVSI00	AAVSI03			AAVSI16	Calculation	Tuesday	PMA810 JIS standard	Min 25 mt	Not specified	EXW	China	Within 14 days	TT within 5 \$/mt days	
Aluminum ADC12 EXW China Yuan/mt	AAVSI02	AAVSI13				Assessment	Tuesday	PMA810 JIS standard	Min 25 mt	Not specified	EXW	China	Within 14 days	TT within 5 Yuan/mt days	
Aluminum ADC12 FOB China	AAVSJ00	AAVSJ03			AAVSJ16	Assessment	Tuesday	PMA810 JIS standard	Min 25 mt	Not specified	FOB	Shanghai, Tianjin	Within 14 days	TT within 5 \$/mt days	



## Aluminum Chain

### Alumina (Aluminum Oxide)

**Market Close:** 5:30 pm Singapore time (0930 GMT).

#### Seaborne alumina (FOB Australia, FOB Brazil, and CFR China):

The assessments reflect the following specifications: max SiO<sub>2</sub> 0.025%, max Fe<sub>2</sub>O<sub>3</sub> 0.025%, max TiO<sub>2</sub> 0.007%, max Na<sub>2</sub>O 0.55%, max ZnO 0.015%, max P<sub>2</sub>O<sub>5</sub> 0.003%, max CaO 0.05%, max V<sub>2</sub>O<sub>5</sub> 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 m<sup>2</sup>/g. The assessments reflect bulk cargoes of 30,000 mt and 35,000 mt lot sizes. Different cargo sizes, as well as bagged shipments may be considered for the assessment after normalization to normal parameters.

**FOB Australia:** The assessment is based on FOB Australia market information. Pricing information from other locations 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.

**CFR China:** The assessment is based on CFR China market information, in the absence of which Platts may calculate the CFR China as a net-forward from FOB locations, including the benchmark FOB Australia, using appropriate spot freight rates for bulk carriers.

**FOB Brazil:** The assessment represents the discount/premium (differential) for alumina in the Atlantic basin to the benchmark Platts Alumina FOB Australia daily assessment (MMWU00). The assessment reflects cargoes basis FOB Brazil. Material from

other countries in the Atlantic region may be price normalized to FOB Brazil.

**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 CPC in sponge form, excluding shot coke, with the following specification: Sulfur 2.5-3%, Vanadium 300-400 ppm, Nickel max 250 ppm, Iron 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 min 99.7% high-grade P1020A aluminum, DDP US MW consumer works, 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 trading data obtained through the Platts daily survey of P1020A 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 from the date of publication using the prevailing Cash to M3 or month-to-month structure. The assessment includes business for any origin ingot, low-profile sow or T-bars. Volumes must be a min 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 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 min 99.7% high-grade aluminum, DDP US MW consumer works, arrival within 7-30 days from date of publication. Assessment is expressed in cents per pound but also available on a converted \$/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 consumers (sheet mills, remelt billet makers, extruders, rod mills, etc). Includes business for LME-deliverable, any origin ingot, low-profile sow or T-bars, 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. Other payment terms 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 and some US holidays, 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/lb, 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 consumers. Includes business for LME-deliverable, any-origin min 99.7% North American P1020A ingot, low-profile sow or T-bars, meeting LME specifications, basis delivery US Midwest. Volumes are min 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 min 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 consumers 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.

**US P1020A Duty Freight Factor (\$/mt: AFLSA00; cts/lb: AFLSB00):** Daily assessment determined by adding together inland US freight, Canada-US sea vessel/barge/truck/rail freight and relevant loading and unloading charges to net back to an FOB Canada basis from a delivered US Midwest basis.

**P1020A US Import Duty (\$/mt: MMOHU00; cts/lb: MMOEU00):** Daily value calculated using the following method: 1) deduct the freight factor (AFLSA00; AFLSB00) from the US Midwest

Transaction assessment to derive an implied FOB value; 2) divide the FOB value by 1.1, creating an implied duty-unpaid FOB value; 3) multiply this implied duty-unpaid value by 0.1 to generate the “P1020A US Import Duty”.

**P1020A MW US Transaction Premium (Implied Duty-Unpaid) delivered US Midwest (\$/mt: MMOIU00; cts/lb: MMOFU00):** Daily value calculated by deducting the “P1020A US Import Duty” from the “MW US Transaction Premium”.

**P1020A Transaction Price (Implied Duty-Unpaid) delivered US Midwest (\$/mt: MMOJU00; cts/lb: MMOGU00):** Daily value calculated by deducting the “P1020A US Import Duty” from the “MW US Transaction price”.

**CIF New Orleans duty-unpaid premium:** Daily assessment of the premium or discount, in \$/mt, to the LME price for P1020A 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 also publishes a cents/lb conversion and a derived NOLA to the Midwest Transaction Premium (MMAKE00) differential.

**US Six-Months P1020A:** Weekly US free-market premium over LME for North American min 99.7% ingot delivered Midwest for a period in time six months forward, based on market information collected during the current week for settlement six months from the date of the assessment. Reflects both physical and financial derivatives business.

**US Spot 6063 Billet Upcharge:** Weekly US spot upcharge assessment over current P1020A 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 min 99.7% ingot meeting LME high grade specifications. Assessed on duty-paid and duty-unpaid basis in-warehouse Rotterdam.

**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. Mini 50 mt shipments for delivery within 60 days.

### Asia

**CIF Japan Spot Premium:** Daily assessment of the spot premium or discount to the futures 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 futures 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. Platts also publishes an all-in price, which is calculated as a sum of futures cash settlement and the spot CIF Japan premium assessment.

### **CIF Japan Forward Quarter Premium (industry-settled):**

Industry-negotiated premium or discount to the futures price at time of shipment. The premium range reflects the majority of concluded quarterly price settlements for annual long-term contracts. 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 P1020A aluminum into China. The calculation is the current futures 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.

### 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 P1020A, min 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, cash against documents payment (at arrival or up to 7 days prior to the arrival at the discharge port). 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 DDP SE Brazil:** Platts assesses premium or discount to the LME cash settlement price for spot physical high-grade aluminum P1020A, min 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 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. Platts also publishes an all-in, "Market", price, which is calculated as a sum of the assessed premium and the LME price for a corresponding strip.

### **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% metallic, not more than 1% free zinc, and max 0.30% magnesium, with quality comparable to the following suppliers: Huron Valley, 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. Reflects the range of spot business concluded by mill 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 through a survey of scrap dealers and rolling mill buyers.

**6063 New bare extrusion scrap:** 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. Prior to January 7, 2016, the assessment was for new 6063 press scrap with butts included. Anodized material is acceptable, but free of oil, film, coating or paint, and free of stainless steel, 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. Normalized to delivered US Midwest, within 30 days, net-30 day payment terms. Based on 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 market information reported as discounts or all-in prices. The weekly assessment reflects a discount to Thursday’s Platts Aluminum Transaction price. Platts also publishes a daily all-in value, calculated as a sum of the last-assessed discount and the daily Aluminum Transaction assessment.

**6022 New bare scrap:** New, bare aluminum sheet scrap meeting 6022 specification with a min thickness of 0.050 inches. Free of hair wire, wire screen, dirt and other non-metallic items, as well as punchings less than half-inch in diameter. Grease and oil not to total more than 1%. Normalized to delivered US Midwest, within 30 days, 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, taking into account market information reported as discounts or all-in prices. The weekly assessment reflects a discount to Thursday’s Platts Aluminum Transaction price. Platts also publishes a daily all-in value, calculated as a sum of the last-assessed discount and the daily Aluminum Transaction assessment.

**5052 New bare scrap:** New, bare aluminum scrap meeting 5052 specification with the min thickness is 0.015” (0.38 mm). Free of hair wire, wire screen, dirt and other non-metallic items, as well as punchings less than 1/2” (1.27 cm) in size, as per ISRI specifications. Grease and oil not to total more than 1%. Normalized to delivered US Midwest, within 30 days, net-30 day payment terms. Based on a survey of scrap consumers, dealers, traders, brokers, and others active in the spot 5052 new bare market, taking into account market information reported as discounts, all-in prices and percentages of the Platts Transaction price. The weekly assessment reflects a discount to Thursday’s Platts Aluminum Transaction price. Platts also publishes a daily all-in value, calculated as a sum of the

last-assessed discount and the daily Aluminum Transaction assessment.

### 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). The price excludes VAT and is published in pesos/kg and \$/lb.

**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). The price excludes VAT and is published in pesos/kg and \$/lb.

**UBCs delivered NE Mexico:** Baled used beverage cans, ISRI “taldon” specification. Delivered in the northeastern Mexico (Nuevo Leon and Coahuila states). The price excludes VAT and is published in pesos/kg and \$/lb.

**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). The price excludes VAT and is published in pesos/kg and \$/lb.

**Aluminum scrap FOT SE Brazil:** Platts assesses domestic prices of aluminum cans, castings and profile extrusion. For full specifications please see the table.

### **Secondary Aluminum Alloys**

#### US

US secondary aluminum alloys are assessed twice a week on Mondays and Thursdays, except in the case of national holidays, where they may be assessed on the next-closest business day. During certain holiday weeks where market activity is more limited, the assessments are carried out once per week. The assessments are based on a survey of US secondary aluminum

smelters, diecasters, foundries, automotive companies, traders and brokers and reflect spot deliveries to US Midwest customer works, payment net-30 to net-60 days, min 45,000-lb truckload amounts.

The A380 assessment reflects new A380 specification alloy produced by smelters with reverberatory furnaces, not warehoused LME North American Special Aluminium Alloy Contract (NASAAC). Other alloys are aligned with the Aluminum Association specifications or typical market specifications for 319.1, 356.1, 332.2 (for F132), A413 and B390.

Platts assessments represent the following qualities:

A380 Alloy - 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.

319 – 5.5-6.5% Si; 0.8% Fe, 3-4% Cu; 0.50% Mn, 0.1% Mg, 0.35% Ni; 1% Zn, 0.25% Ti.

356 – 6.5-7.56% Si; 0.5% Fe; 0.25% Cu; 0.35% Mn; 0.25-0.45% Mg; 0.35% Zn; 0.25% Ti.

F132 – 8.5-10% Si; 0.6% Fe; 2-4% Cu; 0.2% Mn; 0.9-1.3% Mg; 0.1% Ni; 1% Zn; 0.2% Ti.

B390 – 16-18% Si, 1.3% max Fe, 4-5% Cu, 0.5% Mn, 0.45-0.65% Mg, 0.1% Ni, 1.4% Zn; 0.2% 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.

### Europe

**Aluminum Alloy 226, 231:** Secondary aluminum alloys are assessed in Eur/mt on a delivered German works basis, 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- $\text{AlSi9Cu3}$  as described in DIN

standard 1725 (1986). The 231 alloy conforms to  $\text{AlSi12(Cu)}$  as described in DIN 1706.

### Asia

**ADC12 ex-works China:** The assessment reflects the domestic spot market price in yuan/mt and converted into a \$/mt value, ex-plant from a typical supplier. The spot price represents information reported by physical market participants, including Chinese secondary aluminum smelters, diecasters, foundries, automotive companies, and traders.

**ADC12 FOB China:** The assessment reflects the export spot market price in \$/mt, FOB Chinese ports, mainly Shanghai and Tianjin. The spot price represents information reported by physical market participants, including secondary aluminum smelters, diecasters, foundries, automotive companies, and traders.

**BASE METALS**

Assessment	Code	Mavg	Wavg	Yavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
<b>Copper</b>															
Copper NY Delivered Premium over spot cathode	MMACP00	MMACP03		MMACP16	Assessment	Thursday	PMA350	Premium to COMEX spot for Grade 1 or Grade A copper cathodes	200-1,000 mt	Not specified	Delivered	Midwest	Within 30 days	Cash	Cents/lb
Copper US Transaction (All-in)	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)	200-1,000 mt	Not specified	Delivered	Midwest	Within 30 days	Cash	Cents/lb
Copper LME Premium C+F China	MMAMK00				Assessment	Daily	PMA106	99.95% min cathode, mostly of Chilean origin	Min 500 mt	Not specified	C&F	China - Huangpu, Shanghai, Guangzhou, Hong Kong	Delivery 2-8 weeks forward	LC 30 days	\$/mt
Copper C+F China (All-in)	MMAMJ00		MMAMJ04		Calculation	Daily	PMA106	99.95% min cathode, mostly of Chilean origin	Min 500 mt	Not specified	C&F	China - Huangpu, Shanghai, Guangzhou, Hong Kong	Delivery 2-8 weeks forward	LC 30 days	\$/mt
Copper C+F China Spot Yuan/mt (All-in)	MMSC00	MMSC03			Calculation	Daily	PMA106	99.95% min cathode, mostly of Chilean origin	Min 500 mt	Not specified	C&F	China - Huangpu, Shanghai, Guangzhou, Hong Kong	Delivery 2-8 weeks forward	LC 30 days	Yuan/mt
Copper C+F China Fixed Price Equivalent (All-in)	MMCUC00	MMCUC03			Calculation	Daily	PMA419	99.95% min cathode, mostly of Chilean origin	Min 500 mt	Not specified	C&F	China - Huangpu, Shanghai, Guangzhou, Hong Kong	Delivery 2-8 weeks forward	LC 30 days	\$/mt
<b>Copper Scrap</b>															
Copper No1 Burnt Scrap Discount	MMACJ10	MMACJ02		MMACJ16	Assessment	Wednesday	PMA350	Typical 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	Assessment	Wednesday	PMA350	Typical 98-99% Cu	Min truckload	bricks, blocks	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
Copper No2 Birch/Cliff Scrap Discount	MMACN10	MMACN02		MMACN06	Assessment	Wednesday	PMA350	Typical 94-96% Cu	Min truckload	wire and miscellaneous scrap	FAS	Major US ports	Within 30 days	Cash against documents	Cents/lb
<b>Lead</b>															
Lead US Premium	MMXCD00	MMXCD03		MMXCD16	Assessment	Tuesday	PMA306	99.97% pure corroding-grade lead, max 0.025% Bi, max 0.005% Ag, max 0.001% 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 (All-in)	MMALF01	AADDN00	MMALF04	MMALF16	Calculation	Daily	PMA306	99.97% pure corroding-grade lead, max 0.025% Bi, max 0.005% Ag, max 0.001% 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
<b>Lead Scrap</b>															
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

**BASE METALS**

Assessment	Code	Mavg	Wavg	Yavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
<b>ZINC</b>															
Zinc MW SHG Premium	MMAZH00	MMAZH03			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	Special high grade zinc	Min truckload, typical 200-400 mt		Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
Zinc US Dealer SHG (All-in)	MMABF10				Assessment	Thursday	PMA306	Special high grade zinc	Min truckload, typical 200-400 mt		Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
Zinc US Galvanizer Premium	MMAZI00				Assessment	Thursday	PMA306	Special high-grade zinc or continuous galvanizing grade zinc in jumbo form	1-2 railcars, or W 2426 lb (1100 4-9 truckloads)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	Special high-grade zinc or continuous galvanizing grade zinc in jumbo form	1-2 railcars, or W 2426 lb (1100 4-9 truckloads)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 (SHG) FCA Rotterdam Premium	MMAYN04				Assessment	Monthly	PMA416	Premium or discount to the LME cash price for special high grade zinc	Min truckload	Not specified	FCA	Rotterdam	Prompt delivery	0-60-day terms	\$/mt
Zinc (SHG) FCA Rotterdam (All-in)	MMALC00				Calculation	Monthly	PMA416	All-in price for special high-grade zinc, LME plus premium	Min truckload	Not specified	FCA	Rotterdam	Prompt delivery	0-60-day terms	\$/mt
<b>Zinc Secondary Alloys</b>															
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	MMAZJ00				Assessment	Thursday	PMA306	Premium or discount to LME cash price for zinc No. 3 Alloy	Min truckload, typical 100-250 mt	Not specified	Delivered	Midwest	Within 30 days	Net 30 days	Cents/lb
<b>Tin</b>															
Tin NY Dealer	MMAAW10	MMAAW02	MMAAW01	MMAAW16	Assessment	Monday/Thursday	PMA309	New York Grade A tin	Min 20 mt truckload	Not specified	IW duty paid US		within 30 days	Net 30 days	Cents/lb
<b>Nickel</b>															
Nickel US Cathode Premium Spot	MMAZM04				Assessment	Thursday	N/A	Min 99.8% Ni	Min 20 mt truckload	4x4" cut cathodes	Delivered	Midwest	within 30 days	Net 30 days	Cents/lb
Nickel US Melt Premium Spot	MMAZI04	MMAZJ03			Assessment	Thursday	N/A	Min 99.8% Ni	Min 20 mt truckload	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	Min 99.8% Ni	Min 20 mt truckload	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	Min 99.8% Ni	Min 20 mt truckload	4x4" cut cathodes	Delivered	Midwest	within 30 days	Net 30 days	\$/lb
Nickel NY Dealer Melt (All-in)	MMAAS00	MMAAS03		MMAAS16	Calculation	Thursday	PMA402	Min 99.8% Ni	Min 20 mt truckload	cathode and other forms	Delivered	Midwest	within 30 days	Net 30 days	\$/lb

## BASE METALS

Assessment	Code	Mavg	Wavg	Yavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
Nickel NY Dealer Plate (All-in)	MMAAU00				Calculation	Thursday	PMA403	Min 99.8% Ni	Min 20 mt truckload	full plate uncut cathode	Delivered	Midwest	within 30 days	Net 30 days	\$/lb
Nickel Briquettes Premium Rotterdam	AALWJ00	AALWK00			Assessment	Friday	PMA415	LME grade min. 99.8% Ni	Min 20 mt truckload	Briquettes	IW	Rotterdam	within 30 days	Not specified	\$/mt
Nickel Plating Premium Rotterdam	MMAYP04				Assessment	Friday	PMA415	LME grade min. 99.8% Ni	Min 20 mt truckload	4x4" cut cathodes	IW	Rotterdam	within 30 days	Not specified	\$/mt
Nickel European Plating (All-in)	MAMMR00				Calculation	Friday	PMA415	LME grade min. 99.8% Ni	Min 20 mt truckload	4x4" cut cathodes	IW	Rotterdam	within 30 days	Not specified	\$/mt
Nickel Russian Cathode Premium Rotterdam	MMAYP04				Assessment	Friday	PMA415	LME grade min. 99.8% Ni	Min 20 mt truckload	full plate uncut cathode	IW	Rotterdam	within 30 days	Not specified	\$/mt
Nickel Russian Cathode (All-in)	MAMMN04				Calculation	Friday	PMA415	LME grade min. 99.8% Ni	Min 20 mt truckload	full plate uncut cathode	IW	Rotterdam	within 30 days	Not specified	\$/mt

## Base metals

### Copper

**NY Dealer Premium over spot cathode:** Typical market premium above First Position (spot) COMEX being charged by New York metal merchants on the next to last business day of the week. Platts also publishes a daily all-in value calculated as a sum of the last-assessed premium and the daily COMEX copper first position.

**Copper C&F China:** Premium for Grade A min 99.95% 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 Birch/Cliff Scrap:** US-delivered clean No. 2 scrap, including wire and miscellaneous scrap, discount/premium spread to the COMEX copper active month. Normalized to delivered FAS major US ports.

### Lead

**US Lead:** Platts assesses 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), max 0.025% Bi, max 0.005% Ag, max 0.001% Cu, max 0.001% Fe. Minimum quantity one truckload (42,000-44,000 lb), typical order size one to five truckloads. Platts also publishes a daily all-in value, calculated as a sum of the last-assessed premium and the daily lead cash settlement price, converted into cents/lb.

### 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.

**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.

### Zinc

#### US

**Special High Grade:** Weekly assessment of the spot premium or discount to LME zinc cash settlement price for SHG zinc, delivered US Midwest. Platts also publishes corresponding daily and weekly all-in values, calculated as a sum of the last-assessed premium/discount and the daily LME cash settlement price, converted into cents/lb.



**Galvanized:** Weekly assessment of the spot premium or discount to the LME SHG 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 1.1% aluminum. The assessment is normalized to a typical spot quantity of 1-2 railcars, or 4-9 truckloads. Platts also publishes a corresponding daily all-in value, calculated as a sum of the last-assessed premium/discount and the daily LME cash settlement price, converted into cents/lb

**Alloy No. 3:** Weekly assessment of the premium or discount to the London Metal Exchange cash settlement price for No. 3 die casting zinc alloy. Platts also publishes a corresponding daily all-in value, calculated as a sum of the last-assessed premium/discount and the daily LME cash settlement price, converted into cents/lb.

### Europe

**Special High Grade Rotterdam:** Monthly assessment of the \$/mt premium over LME cash for SHG zinc on an FCA Rotterdam basis, 0-60-day payment terms, prompt delivery. Assessed on the third Wednesday of each month. 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 min 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 min 99.8% Ni.

**BATTERY METALS**

Assessment	Code	Mavg	Qavg	Type	Published	Page	Quality	Quantity	Dimensions	Incoterms	Location	Timing	Payment	UOM
<b>Lithium</b>														
Lithium Carbonate CIF North Asia	BATLC04	BATLC03	BATLC05	Assessment	Friday	PMA8888	Min 99.5% Li2CO3	Containers 5-40 mt	Powder packed in bags	CIF	Shanghai, China	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	Shanghai, China	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	Japan / South Korea	15-60 days	Letter of Credit	\$/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
<b>Cobalt</b>														
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
Cobalt Hydroxide CIF China	BATCH04	BATCH03	BATCH05	Assessment	Thursday	PMA8890	Co 30%, Mn 2-6%, Mg50-150mt of Co max. 6%, Fe max. 3%, contained moisture 10%		Powder packed in bags	CIF	China	14-60 days	Letter of Credit at sight	\$/lb
Cobalt Hydroxide CIF China	BATCT04	BATCT03	BATCT05	Calculation	Thursday	PMA8890	Co 30%, Mn 2-6%, Mg50-150mt of Co max. 6%, Fe max. 3%, contained moisture 10%		Powder packed in bags	CIF	China	14-60 days	Letter of Credit at sight	\$/mt
<b>Nickel</b>														
Nickel Sulfate DDP China	BATNS04	BATNS03	BATNS05	Assessment	Wednesday	PMA8887	Nickel content: min 22% Magnetic materials: max 100 ppb	Min 1 truckload	Powder packed in bags	DDP	China	Within 14 days	30 days payment, bank acceptance or T/T, paid after delivery	Yuan/mt

## Battery Metals

### Lithium

**Lithium Carbonate:** Assessed on CIF North Asia and DDP China basis, reflecting physical spot market prices for min 99.5% purity battery grade lithium carbonate. Other qualities are considered, and may be normalized back to Platts base standard specifications, subject to prevailing market differentials. Platts also publishes an import parity price on CIF North Asia basis, which is calculated by converting the CIF North Asia assessment into Yuan/mt, adding Chinese VAT, port and logistics costs. The basis location for CIF North Asia assessment is Shanghai port, China. Cargoes delivered into any North Asian ports, such as in Japan and South Korea, are reflected in the assessment, after normalizing to the stated basis port. Freight and quality differentials for lithium carbonate cargoes delivered to different north Asian ports, as well as the spreads and dynamics between different regions may be considered in the normalization process.

**Lithium Hydroxide:** Assessed on CIF North Asia and DDP China basis, reflecting physical spot market prices for min 56.5% purity battery grade lithium hydroxide. Other qualities are

considered, and may be normalized back to Platts base standard specifications, subject to prevailing market differentials. The basis location for CIF North Asia assessment is Japan and South Korea. Cargoes delivered to North Asia countries other than Japan and South Korea are reflected in the assessment, after normalizing to the stated basis. Freight, quality differentials for lithium hydroxide cargoes, as well as the spreads and dynamics between different regions may be considered in the normalization process.

**Lithium Spodumene:** Assessed on FOB Australia basis, reflecting physical spot market price for lithium spodumene with a min 6% lithium oxide content exported on a free on board basis of a min volume of 1,000mt from Western Australian ports within 30 days of the date of publication. Other qualities are considered, and 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:** Assessed on CIF North Asia and DDP China basis, reflecting physical spot market prices for min 20.5% cobalt content. Other qualities are considered, and may be

normalized back to Platts base standard specifications, subject to prevailing market differentials. In the absence of information for the international market, the CIF North Asia assessment is assessed as an import parity calculation from the domestic Cobalt sulfate DDP China price.

**Cobalt Hydroxide:** Assessed on a CIF China basis, reflecting physical spot market prices for any-origin cobalt hydroxide with 30% cobalt content, 2-6% manganese content, max. 6% magnesium content, max. 3% iron content and 10% moisture. Other qualities may be normalised back to Platts base standards. Platts assessment reflects responsibly sourced material, which sellers should be able to demonstrate in line with standard industry practice, upon buyers' request.

### Nickel

**Nickel Sulfate:** Assessed on DDP China basis, reflecting physical spot market prices for min 22% nickel content and max 100 ppb magnetic materials, often referred to by market participants as type 2 nickel sulfate. All origins of type 2 nickel sulfate are considered, and other grades of type 2 nickel sulfate 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
<b>Magnesium</b>														
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	Typical 1-5 truckloads	Ingots, sow or T-bars	IW	Rotterdam, duty unpaid	Shipment within 30 days	Net 30 days	\$/mt
<b>Silicon</b>														
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	Typical 1-5 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 Europe	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, duty paid	European ports	Shipment within 60 days	Net-30 days	Eur/mt
<b>Titanium</b>														
Titanium 0.5% US Turning	MMAJZ00	MMAJZ03	MMAJZ16	Assessment	Thursday	PMA371	90% Ti, 6% Al, 4% V, 0.5% tin	Full 40,000 lb truckload		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 20 mt container		DDP	Europe	Delivery within 30 days	Net 30 days	\$/lb
<b>Minor Metals</b>														
Cobalt 99.8% European	MMAIK00			Assessment	Thursday	PMA375	Min 99.8% Co	1-5 mt	1"x1" cut cathodes	IW	Europe	Shipment within 30 days	Net 30 days	\$/lb
Cobalt US Spot Cathode	MMAE000	MMAE003	MMAE016	Assessment	Thursday	PMA375	Min 99.8% Co	1-5 mt	1 inch cathodes and/or roundelles	DDP	US	Shipment within 30 days	Net 30 days	\$/lb
Tungsten US Spot Ore	MMAHA00			Assessment	Thursday	PMA410	Min 65% WO3	Not specified	Not specified	DDP	US	Shipment within 30 days	Net 30 days	\$/lb W contained
Tungsten APT US	MMAHC00	MMAHC03		Assessment	Thursday	PMA410	Min 88% WO3	Not specified	Not specified	DDP	US	Shipment within 30 days	Net 30 days	\$/STU

## Light/Minor metals

### Cobalt

**Cobalt European 99.8%:** Daily assessed spot price for min. 99.8% cobalt; cut cathodes, broken cathodes and briquettes. Other qualities are considered and normalized back to Platts base standard specifications, subject to prevailing market differentials. The price is assessed on an in-warehouse Europe basis.

**US 99.8% Spot Cathode:** Weekly assessed US spot market price for cobalt, min 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.

### 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.

**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.

**Europe Free Market:** Dealer traded price for 99.9% pure, mostly Chinese 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 Europe:** EU origin and imported 553 grade silicon metal, duty-paid European main ports, producer plants and major EU warehousing hubs. Reported delivered, CFR and ex-works indications are normalized back to in-warehouse basis. Special packaging, payment terms, smaller or larger 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.

**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	Min 99.95%	Not specified	Sponge	DDP	US	Within 30 days	Net 10 days or less	\$/oz
Platinum NY Dealer	MMAHX00	MMAHX03	MMAHX06, MMAHX16	Assessment	Thursday	PMA356	Min 99.95%	Not specified	Sponge	DDP	US	Within 30 days	Net 10 days or less	\$/oz
Rhodium NY Dealer	MMAID00	MMAID03	MMAID06, MMAID16	Assessment	Thursday	PMA356	Min 99.9%	Not specified	Sponge	DDP	US	Within 30 days	Net 10 days or less	\$/oz
Ruthenium NY Dealer	MMAIH00			Assessment	Thursday	PMA353	Min 99.9%	Not specified	Sponge	DDP	US	Within 30 days	Net 10 days or less	\$/oz
Iridium NY Dealer	MMAIJ00			Assessment	Thursday	PMA353	Min 99.9%	Not specified	Sponge	DDP	US	Within 30 days	Net 10 days or less	\$/oz

**Precious metals****Palladium**

**NY Dealer:** Min 99.95% purity palladium, DDP US within 30 days, max net-10 day payment, \$/oz. The assessment reflects sponge form, with pricing information for ingots normalized back to the sponge form.

**Platinum**

**NY Dealer:** Min 99.95% platinum metal, in ingot or sponge form, DDP US within 30 days, max net-10 day payment, \$/oz. The assessment reflects sponge form, with pricing information for ingots normalized back to the sponge form.

**Rhodium**

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

**Ruthenium**

**NY Dealer:** Min 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**

<b>Description</b>	<b>Code</b>	<b>Type</b>	<b>Published</b>	<b>Page</b>	<b>UOM</b>
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

**November 2020:** Platts discontinued Russian Aluminum A7E duty-unpaid in-warehouse Rotterdam and FOB St Petersburg daily assessments effective November 1, 2020; last assessments October 30, 2020.

**October 2020:** In September 2020, Platts discontinued five minor metals assessments in the US, changed the payment terms of CIF Brazil aluminum premium, clarified the location basis for lithium hydroxide CIF North Asia assessment and discontinued the related import parity, discontinued silicon 553 FOB China assessment, launched nickel sulfate DDP China assessment, corrected a typographical error for lithium carbonate location to CIF North Asia from CIF China basis and clarified the zinc content in the US F132 aluminum alloy assessment.

**August 2020:** Platts discontinued Cobalt Russian and Cobalt Zambian prices after last assessments July 30, 2020, clarified the location basis for lithium carbonate CIF North Asia assessment.

**June 2020:** Platts updated the frequency, quantities and dimensions of Cobalt 99.8% European, clarified the quantities of Chinese copper prices and updated payment terms of Aluminum ADC12 FOB China.

**May 2020:** Platts conducted annual review of the specifications guide and made clarifications and stylistic changes throughout. The clarifications included a more detailed description of all-in prices across all metals and fuller description of such assessment parameters as; quantities, payment terms, location, loading/delivery timing etc. References to P1020 aluminum were replaced with the more exact "P1020A" and the specifications of global primary aluminum assessments were updated to reflect minimum 99.7% purity in line with the LME specification. Platts also clarified the timestamp of cobalt assessments as 16.30 London time and of the US aluminum assessments during some US holidays. Platts launched CIF China cobalt hydroxide

assessment.

**March 2020:** Platts launched 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 labeling 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 P1020A 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 P1020A 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 P1020A 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.

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