

**REFERENCE LIST OF PROJECTS AWARDED IN THE BASE METALS, NON-FERROUS, FERRO ALLOYS, IRON AND STEEL, ILMENITE AND GLASS INDUSTRIES**

**1. BASE METALS AND NON-FERROUS**

(Projects marked \* were full relines or new furnaces)

Materials: Magnesia, mag chrome, chrome mag, chrome alumina, Alumina chrome and aluminosilicate brick & full range of monolithic products.

<u>No.</u>	<u>DATE</u>	<u>PLANT</u>	<u>FURNACE</u>	<u>COMMENT</u>
<b>As Vereeniging Refractories Pty Ltd</b>				
1.	1994 *	Amplats Waterval Section	No. 2 Six in Line	Complete Rebuild
2.	1996 *	ZCCM Luanshya Zambia	Reverb	Complete Rebuild
3.	1996 *	Western Platinum	Six in Line	Complete Rebuild
4.	1997	Makwiro Platinum	Elkem Furnace	Side Walls
5.	1999	Lonmin Platinum	Six in Line	Repair
6.	1999 *	Amplats Union Section	Six in Line	Complete Rebuild
7.	2000 *	Impala Platinum	No. 3 Six in Line	Complete Reline
8.	2000 *	Palabora Mining Company	Reverb	Complete Rebuild
9.	2000	Ongopolo Tsumeb Namibia	Reverb	Side Walls & Roof
10.	2000 *	Amplats / Xstrata Project	Electric Slag Cleaner	Conversion & Complete Reline
11.	2001 *	ZCCM Smelterco Nkana	Reverb	Complete Rebuild
12.	2001 *	Amplats Waterval Section	Electric Slag Cleaner	New Project
13.	2002 *	Amplats Polokwane Section	Six in Line	68 MVA Greenfield's Project 2 800 Tonnes of Refractories
14.	2002	Northam Platinum	Six in Line	Side Walls & Roof
15.	2002	BSR Zimbabwe	Six in Line	Side Walls & Roof
16.	2002 *	BCL Botswana	Electric Slag Cleaner #2	Complete Rebuild
17.	2003	KCM Smelterco	No. 4 Reverb	Repair
18.	2003	Amplats Waterval Section	No. 1 Six in Line	End Wall Rebuild
19.	2003	Amplats Waterval Section	No. 2 Six in line	Side Walls & Roof
20.	2003	Makwiro Platinum Inst. 2007	Elkem Furnace	Hearth & Side Walls
21.	2003 *	BCL Botswana	Electric Slag Cleaner #1	Complete Rebuild
22.	2003	Falconbridge Sudbury Canada	No. 2 Six in line	Full Roof
23.	2004	Amplats Union Section	Six in Line	Side and End Walls
24.	2004 *	Amplats Waterval Section	Electric Slag Cleaner	Full Spare Lining
25.	2004	Amplats Polokwane Section	Six in Line	Side and End Walls
26.	2005 *	Amplats Waterval Section	No. 2 Six in Line	Complete Rebuild
27.	2005 *	Palaborwa Mining Company	Reverb	Bulk of Complete Rebuild
28.	2005	Amplats Polokwane Section	Six in Line	Side and End Walls
29.	2005	Amplats Waterval Section	No. 1 Six in Line	End Walls
30.	2005	Amplats Polokwane Section	Six in Line	Side and End Walls
31.	2006	Amplats Union Section	Six in Line	End Walls
32.	2006	Amplats Polokwane Section	Six in Line	Cooler Repair
33.	2006	INCO Sudbury Canada	No. 1 Flash Smelter	100 Tonne Trial Panel
34.	2006 *	Ongopolo Tsumeb Namibia	Reverb	Complete Rebuild
35.	2006 *	Amplats Waterval Section	No. 1 Six in Line	Complete Rebuild
36.	2007 *	Amplats Union Section	Six in Line	Complete Rebuild & Redesign
37.	2007	Falconbridge Sudbury Canada	No. 2 Six in line	Roof Spares

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**Reference List**

38.	2007	Amplats Polokwane Section	Six in Line	Walls and Hearth Spares
39.	2007 *	BCL Botswana	Electric Slag Cleaner #2	Complete Rebuild
40.	2007	INCO Sudbury Canada	No. 2 Flash Smelter	200 Tonnes Side & End Walls
41.	2007	PT Antam Indonesia	FENI 3 Smelter	Emergency - small quantity
42.	2008	Amplats Waterval Section	No. 1 Six in Line	Side & End Wall Upgrade
43.	2008	Northam Platinum	Six in Line	Infill & Upper Sidewall
44.	2008 *	BCL Botswana	Electric Slag Cleaner #2	Spare Lining
45.	2009 *	Rand Refinery (Au/Pb)	Electric Furnace	Redesign & Complete Reline
46.	2009 *	Amplats Waterval Section	No. 2 Six in Line	Redesign & Complete Reline
47.	2009	Amplats Waterval Section	No. 1 Six in Line	Spare End Walls
48.	2009	PT Antam Indonesia	No. 3 Smelter	Side Wall Repair
49.	2009 *	Amplats Waterval Section	Electric Slag Cleaner	Redesign & Complete Reline
50.	2010 *	Amplats Polokwane Section	Six in Line	Complete Rebuild
51.	2010 *	Amplats Waterval Section	Electric Slag Cleaner	Complete Reline following a Water Leak
52.	2010 *	Rand Refinery	Electric Furnace	Spare Lining
53.	2011	Palabora Mining Company	Reverb	Upper Side Wall and Roof
54.	2011	Amplats Polokwane Section	Six in Line	Spare Hearth and Roof
55.	2011	PT Antam Indonesia	FENI 2 Smelter	Side Wall
56.	2011	Amplats Union Section	Six in Line	Side Walls - Phase 2 Upgrade
57.	2011 *	PT Inco Indonesia	No. 2 Furnace	Full Reline
58.	2011	QMAG Australia	No. 3 Shaft Kiln	Partial Reline
59.	2011	BCL Botswana	Flash Furnace	Full Hearth
60.	2011	Amplats Waterval Section	Electric Slag Cleaner	Spare Hearth & Side Wall

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61.	2012	QMAG Australia	No. 2 Shaft Kiln	Partial Reline
62.	2013	QMAG Australia	No. 1 Shaft Kiln	Partial Reline
63.	2013	Northam Platinum	Six in Line	Infill and upper side wall
64.	2013 *	BCL	CSCV	Complete Reline
65.	2014	Amplats Union Section	six in Line	Side walls
66.	2014	Amplats Waterval Section	No.1 Six in Line	Side and end wall repairs
67.	2014	Amplats Polokwane Section	Six in Line	End wall repairs and Furnace extension.
68.	2015	Glencore Sudbury	Six in Line	Full sidewall replacement
69.	2015 *	Bindura Nickel	Six in Line	Full sidewall and roof replacement.
70.	2015	Palabora Copper	Reverb	Partial walls and roof replacement.
71.	2015	Amplats Waterval Section	No. 2 Six in Line	end wall and matte wall repairs
72.	2015 *	BCL	Niro driers	Full relines
73.	2015 *	BCL	CSCV	Full reline

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74.	2016 *	Palabora Copper	Reverb	Full Reline
75.	2016	Amplats Polokwane Section	Six in line	Sidewall and end wall repairs
76.	2016 *	Amplats Waterval Section	No.1 Six in Line	Hearth and sidewall Replacement
77.	2016	Dundee Precious Metals	Ausmelt	Emergency hearth supply
78.	2017 *	Amplats Waterval Section	No.2 Six in Line	Full hearth, sidewall and roof replacement.
79.	2017 *	Rand Refinery	EAF	Spare Lining

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**Reference List**

80	2017	Zimplats	EAF	Partial rebuild
81	2018 *	Amplats Union Section	Six in Line	Full hearth, sidewall and roof replacement.
82	2018 *	Amplats UNKI Smelter	EAF	Full reline, except lower hearth – new project
83	2018	Amplats Polokwane	Six in Line	Sidewall and end walls Replacement, flash driers
84	2019	Amplats Waterval	Six in Line	Matte endwall and partial ring repair.
85	2019	Zimplats	EAF	Upper Sidewalls replacement.
86	2019	Amplats Waterval	Six in Line	Matte end wall repairs
87	2019	Amplats Union Section	Six in Line	Matte end wall repairs
88	2019	Rand Refinery	EAF	Full Reline
89	2019	Amplats UNKI Smelter	EAF	Full Upper Sidewalls

Materials (refractory brick, castable, mortar, ramming, gunning and fibre blanket) have and are also supplied on a regular basis to consumable applications as follows:

South Africa	Palabora Copper, Impala Platinum, Lonmin Platinum (Sibanye Stillwater), Northam Platinum, Fry's Metals, Rand Refinery, Mintek, Sasol
Namibia	Dundee Precious Metals
Botswana	BCL (Closed)
Zambia	KCM, Mopani Copper, Kansanshi Copper
Congo	STL, Gecamines.
Zimbabwe	Zimplats, Bindura Nickel, Riozim, UNKI
Chile	Glencore Copper (Noranda Smelter) and Angloamerican Chagres.
Canada	Vale Inco and Glencore INO (Falconbridge/Sudbury).
USA	Asarco Arizona, Sibanye Stillwater Mining.
Indonesia	PT Vale (Inco) - Converter brick supply.

**2. FERROALLOYS INDUSTRY**

Materials: Alumina silicate, magnesia & chrome mag brick and monolithic.

<u>No.</u>	<u>DATE</u>	<u>PLANT</u>	<u>FURNACE</u>	<u>COMMENT</u>
1.	1994 *	Palmiet Ferrochrome	DC Arc Furnace	Subhearth & Walls
2.	1995 *	Samancor	M3 Furnace	Rebuild
3.	1995	Samancor	No. 6 Furnace	Repair
4.	1995 *	Samancor	Rebuild	Rebuild
5.	1995 *	Chrome Resources	No. 5 & 6	Complete
6.	1995 *	Pyromet	Hernic	Complete
7.	1995 *	Pyromet	Hernic	Complete
8.	1995 *	Pyromet	CMI D Furnace	Complete
9.	1996 *	Samancor	M4 Furnace	Rebuild
10.	1996 *	HSVC	Transalloys	2x Subarcs
11.	1996 *	Pyromet	Ferroalloys Cato Ridge	2x Subarcs
12.	1997 *	Titaco	Advalloy Meyerton Si Mn	Furnace
13.	1997 *	Hatch	Tubatsi No.5	Complete
14.	1998	Tubatsi Ferrochrome	No.5 Furnace	Repair
15.	1998	Middelburg Ferrochrome	M3 Repair	Repair
16.	1998 *	Pyromet	ASA Metals	New Furnace
17.	1998 *	Ferrometals	No. 1 Furnace	Rebuild

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## Reference List

18.	1998 *	Titaco	Hernic New Furnace	New Furnace
19.	1998	Tubatsi Ferrochrome	No.1 Furnace	Repair
20.	1998	Ferrometals	No.2 Furnace	Rebuild
21.	1998 *	Middelburg Ferrochrome	E Furnace	Rebuild
22.	1999 *	Ferroalloys	No. 2 Furnace	Rebuild
23.	1999 *	Ferroalloys	Cato Ridge	Rebuild
24.	1999 *	Samancor	M12	Complete
25.	1999 *	Ferroalloys	Cato Ridge No. 4	Rebuild
26.	1999	Chromecor Technology	Repair	Repair
27.	1999 *	Silicon Smelters	No. 2 Furnace	Rebuild
28.	1999 *	Assmang Chrome	Machadodorp No. 2	Full Reline
29.	1999 *	Maranatha Ferrochrome	Zimbabwe	Full Reline
30.	2000	Middelburg Ferrochrome	DC Arc Furnace	Spares
31.	2000 *	Samancor	M12	Full Lining
32.	2001 *	Xstrata	Wonderkop	Two Complete Linings
33.	*	"	"	"
34.	2001 *	Assmang Chrome	Machadodorp	Full Lining for Stock
35.	2002 *	Zimbabwe Alloys	A3 Furnace	Complete Rebuild
36.	2002	Middelburg Ferrochrome	DC Arc Furnace	Side Wall Spares
37.	2002 *	Hernic Ferrochrome	No. 2 Furnace	Complete Rebuild
38.	2002	Mogale Alloys	DC Arc Furnace	Sub Hearth & Sidewall
39.	2002	Mogale Alloys	DC Arc Furnace	Spares
40.	2002	Assmang Chrome	Cato Ridge	Wall Repair
41.	2003	Middelburg Ferrochrome	DC Arc Furnace	Spares
41.	2004 *	Siltech Ballengeich	B Furnace	Complete Rebuild
43.	2004 *	Xstrata Lydenburg	A Furnace	Complete Rebuild
44.	2004	Middelburg Ferrochrome	DC Arc Furnace	Spares
45.	2004	Xstrata Wonderkop	No.'s 1 & 2 Furnaces	Hearths for Two Furnaces
46.	2004 *	Hernic Ferrochrome	No. 4 Furnace	New Project
47.	2005 *	Rand Carbide	D Furnace	Complete Rebuild
48.	2005 *	Xstrata Lydenburg	B Furnace	Complete Rebuild
49.	2005 *	Transalloys	No. 5 Furnace	Complete Rebuild
50.	2005 *	Xstrata Lion Project	No. 1 Furnace	New Plant - 2 x 68MVA
51.	2005 *	Xstrata Lion Project	No. 2 Furnace	New Plant - 2 x 68MVA
52.	2006 *	Assmang Chrome	Machadodorp No. 3	Full Reline
53.	2007	Xstrata Rustenburg	No. 1 Furnace	Hearth
54.	2007 *	Middelburg Ferrochrome	DC Arc Furnace	New Furnace (Excl. Anode)
55.	2008	Metalloys	M17	Side Wall Repair
56.	2009	Assmang Chrome	Machadodorp No. 2	Partial
57.	2009 *	Silicon Smelters	No. 2	Full Reline
58.	2009	Xstrata Rustenburg	No. 5	Brick Only
59.	2009	IFM	Rustenburg	Partial - Brick Only
60.	2009 *	Rand Carbide	E Furnace	Full Reline
61.	2010	Zimasco Zimbabwe	No. 5 Furnace	Partial
62.	2010	Transalloys	No. 6 Furnace	Partial
63.	2011	Transalloys	No. 1 Furnace	Partial
64.	2012 *	Xstrata Lydenburg	D Furnace	Full Reline
65.	2012	Metix Zimasco	No. 2 Furnace	Partial
66.	2012	Middelburg Ferrochrome	No.3 Furnace	Partial
67.	2013	Middelburg Ferrochrome	No.4 Furnace	Partial
66.	2013	Tubatse Ferrochrome	No. 5 Furnace	Partial
67.	2013	Middelburg Ferrochrome	DC Arc furnace	Sidewall replacement
68.	2014	Middelburg Ferrochrome	DC Arc Furnace	Sidewall replacement
69.	2018	Middelburg Ferrochrome	DC Arc Furnace	Upper sidewall replacement

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**Reference List**

In addition, DC arc furnace roofs are supplied regularly to Middelburg Ferrochrome. Many projects were conducted as Vereeniging Refractories and Verref Shaped until 2012. From 2014 it is Verref Shaped and RMS.

**3. IRON AND STEEL, ILMENITE SMELTING**

Materials: Mag chrome, chrome alumina, high alumina and alumina silicate brick and monolithic products. Consumable ladle brick supplied to Scaw Metals, Highveld Steel, Richards Bay Minerals, Tronox and Arcelor Mittal.

<u>No.</u>	<u>DATE</u>	<u>PLANT</u>	<u>FURNACE</u>	<u>COMMENT</u>
1.	1993 *	HSVC	No. 4 Sub Arc, Elkem	All but Sub Hearth
2.	1996 *	HSVC	No. 3 Sub Arc, Elkem	All but Sub Hearth
3.	1999 *	HSVC	No. 7 Sub Arc, Demag	All but Sub Hearth
4.	2002 *	HSVC	No. 2 Sub Arc, Elkem	All but Sub Hearth
5.	2005 *	HSVC	No. 5 Open Arc, Elkem	All but Sub Hearth - Conversion
6.	2006 *	HSVC	No. 6 Open Arc, Elkem	All but Sub Hearth - Conversion
7.	2007 *	HSVC	No. 1 Open Arc, Elkem	All but Sub Hearth - Conversion
8.	2008 *	HSVC	Ajax Induction Mixer	New Induction Super Heater
9.	2011	HSVC	No. 7 Sub Arc, Demag	Partial
10.	2014	ArcelorMittal Newcastle	Hot Blast Main supply	and sacrificial pad in blast furnace.
11.	2016	Arcelor Mittal VDB	Coke Ovens	Coke oven reline, SD brick supply.

**4. GLASS INDUSTRY**

Non-glass contact materials only.

Materials: Alumina silicate brick & monolithic.

<u>No.</u>	<u>DATE</u>	<u>PLANT</u>	<u>FURNACE</u>	<u>COMMENT</u>
1.	1995	Consol Bellville	B2 Tank	Repair
2.	1996	Consol Bellville	Repair	Repair
3.	1997	Consol Bellville	B1 Tank	Repair
4.	2004	Consol Bellville	B3 Tank	Repair
5.	2005	Consol Bellville	B4 Tank	Repair
6.	2006	Consol Clayville	C3 Tank	Repair
7.	2007	Consol Bellville	Stack	Repair
8.	2007	Consol Pretoria	P1 Tank	Repair
9.	2007	Consol Pretoria	P2 Tank	Repair
10.	2007	Consol Wadeville	W1 Tank	Repair
11.	2008	Consol Clayville	C4 Tank	New Tank
12.	2008	Consol Wadeville	W3 Tank	Repair
13.	2008	Consol Pretoria	P1 Tank	Repair
14.	2008	Consol Bellville	B2 Tank	Major Repair
15.	2008/09	Consol Wadeville	W4 Tank	Major Repair
16.	2009	Consol Pretoria	P4 Tank	Repair
17.	2009	Consol Wadeville	W3 Tank	Repair
18.	2010	Consol Clayville	C1 Tank	Repair
18.	2010	Consol Clayville	C3 Tank	Repair
18.	2012	Consol Clayville	C2 Tank	Repair

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