Sample	Origin	Rock type	Mineralogy (modal %)	δ^{60}Ni (‰)	± 2 s.d.	*n*	Ni (μg/g)	Mg#
Peridotites								
DTS-1	Washington, USA	orogenic, dunite	ol, sp	-0.077	0.073	*16*	2360	0.92
PCC-1	California, USA	orogenic, harzburgite	ol, opx, cpx, sp	0.141	0.056	*15*	2325	0.91
NHM-1	North Carolina, USA	orogenic, dunite	ol, sp	0.152	0.069	*9*	2830	
Ultramafic xenoliths								
NHM-2	South Africa	kimberlite xenolith, lherzolite	ol, opx, cpx, gt	0.224	0.058	*6*	1740	
BD744	Lashaine, Tanzania	volcanic xenolith, pyroxenite	ol, cpx, mica, sp	0.359	0.082	*3*	2700	0.92
BD822	Lashaine, Tanzania	volcanic xenolith, harzburgite	ol (84.2), opx (11.8), cpx (1.2), sp (0.4)	0.177	0.069	*6*	2345	0.93
BD1542	Lashaine, Tanzania	volcanic xenolith, harzburgite	ol (87.5), opx (7.7), cpx (2.0), sp (0.8)	0.200	0.027	*3*	2500	0.92
BD774	Lashaine, Tanzania	volcanic xenolith, harzburgite	ol (89.3), opx (4.6), cpx (3.2), sp (0.2)	0.283	0.063	*6*	2165	0.92
BD730	Lashaine, Tanzania	volcanic xenolith, lherzolite	ol (65.2), opx (19.9), cpx (2.0), gt (12.9)	0.226	0.057	*6*	1880	0.92
BD1355	Matsoka, Tanzania	volcanic xenolith, lherzolite	ol (49.4), opx (43.4), cpx, (2.2), gt (3.6)	0.245	0.055	*3*	2100	0.93
Phanerozoic komatiites								
GOR 94-3	Gorgona, Colombia	olivine cumulate	ol, plag, cpx, sp, glass	0.219	0.042	*3*	1575	0.84
GOR 94-17	Gorgona, Colombia	olivine cumulate	ol, plag, cpx, sp, glass	0.151	0.046	*3*	1110	0.81
GOR 94-44	Gorgona, Colombia	olivine cumulate	ol, plag, cpx, sp, glass	0.190	0.040	*4*	1325	0.82
GOR 94-19	Gorgona, Colombia	G1 komatiite	ol, plag, cpx, sp, glass	0.259	0.067	*3*	1080	0.78
GOR 94-43	Gorgona, Colombia	G1 komatiite	ol, plag, cpx, sp, glass	0.243	0.055	*4*	1200	0.81

Table 1: Sample information and results for peridotite and komatiites analysed for their Ni isotope composition. Chemical as well as mineral compositions are taken from Dawson et al. (1970), Dawson & Smith (1972), and Ried et al. (1975) for the mantle xenoliths and from Kerr et al. (1996) for the Phanerozoic komatiites.

Sample	Origin	Mineral	Modal (%)	δ^{60}Ni (‰)	± 2 s.d.	*n*	Ni (μg/g)	Mg#
C273Q (lherzolite)	Lake Enep, Cameroon	olivine	ol: 45% opx: 35% cpx: 15% sp: 5%	0.139	0.044	*4*	2870	n/a
C235A (lherzolite)	Lake Baronbi Mbo, Cameroon	orthopyroxene	opx: 25% ol: 60% cpx: 10% sp: 5%	-0.035	0.031	*5*	785	0.90
P13 (lherzolite)	Ngaoundere Plateau, Cameroon	olivine	ol: 65%	0.166	0.049	*5*	3150	0.89
		orthopyroxene	opx: 25%	-0.019	0.055	*4*	770	0.90
		clinopyroxene	cpx: 5%	2.834	0.108	*3*	455	0.94
			sp: 5%					
N12 (harzburgite)	Biu Plateau, Cameroon	clinopyroxene	ol: 55-60%	0.423	0.078	*5*	395	n/a
		garnet	opx: 40-45%	0.296	0.060	*5*	160	n/a

Table 2: Sample information and results for mineral separates from three lherzolite xenoliths from the Cameroon Line analysed for their Ni isotope composition. Modal mineral compositions are from Lee et al. (1996) and chemical data from Williams et al. (2005).

Sample	Number	Type	Class	δ^{60}Ni (‰)	± 2 s.d.	*n*	Ni (wt.%)
Chondrite meteorites							
Allende	BM 1969.148	carbonaceous	CV3	0.242	0.073	*9*	1.35 *a*
Murchinson	BM 17016	carbonaceous	CM2	0.229	0.072	*9*	1.20 *b*
Ornans	BM 42474	carbonaceous	CO3	0.286	0.079	*4*	1.36 *c*
Orgueil	BM 36104	carbonaceous	CI1	0.180	0.036	*4*	1.14 *d*
Indarch	BM 86948	enstatite	EH4	0.274	0.087	*9*	1.11 *a*
Khaipur	BM 1985.M144	enstatite	EL6	0.292	0.084	*9*	1.29 *a*
Kernouve	BM 43400	ordinary	H6	0.372	0.075	*4*	1.97 *b*
Bremervorde	BM 33910	ordinary	H3	0.262	0.050	*5*	1.42 *a*
Baratta	BM 1925.1286	ordinary	L4	0.306	0.046	*9*	1.10 *a*
Bruderheim	BM 1967.256	ordinary	L6	0.513	0.071	*5*	1.22 *e*
Parnallee	BM 34792	ordinary	LL3	0.160	0.049	*4*	1.06 *a*
St Severin	BM 1866.493	ordinary	LL6	0.244	0.047	*5*	10.5 *f*
Iron meteorites							
Negrillos	USNM 1222	hexahedrite	IIA	0.312	0.032	*6*	5.41 *g*
North Chile	BM 1959.917	hexahedrite	IIA	0.362	0.045	*6*	5.59 *h*
Arispe	USNM 2638	coarse octahedrite	IC	0.203	0.064	*5*	6.77 *i*
Clark County	BM 1959.949	medium octahedrite	IIIF	0.299	0.051	*6*	7.02 *i*
Duel Hill	USNM 1048	fine octahedrite	IVA	-0.057	0.057	*6*	10.45 *j*
Gibeon	BM 1910.753	fine octahedrite	IVA	0.312	0.062	*6*	7.78 *j*
Sikhte-Alin	BM 1992.M37	coarse octahedrite	IIB	0.295	0.062	*6*	5.87 *g*
Charcas	BM 85075	medium octahedrite	IIIA	0.232	0.065	*6*	7.86 *k*
Henbury	BM 1932.1473	medium octahedrite	IIIA	0.292	0.067	*6*	7.47 *i*

Table 3: Sample information and results for meteorites analysed for their Ni isotope composition. All samples analysed were from the Natural History Museum, London (BM) apart from three iron meteorites from the Smithsonian National Museum of Natural History, Washington D.C. (USNM). The Ni concentrations are published values for each meteorite: a = Kallemeyn et al. (1989); b = Morgan et al. (1985); c = McSween (1977); d = Hertogen et al. (1983); e = Duke et al. (1961); f = Jarosewich (1990); g = Wason (1969); h = Buchwald (1975); i = Goldberg et al. (1951); j = Wasson & Richardson (2001); k = Scott et al. (1973).

Sample	**Type**	δ^{57}**Fe (‰)**	**± 2 s.d.**	*Reference*
JP-1	orogenic dunite	0.006	0.034	*Poitrasson et al. (2004)*
DTS-1	orogenic dunite	0.153	0.042	*Poitrasson et al. (2004)*
DTS-2	orogenic dunite	0.017	0.047	*Dauphas et al. (2009)*
PCC-1	orogenic harzburgite	0.059	0.033	*Dauphas et al. (2009)*
94-19	komatiite	0.162	0.027	*Hibbert et al. (2012*
94-43	komatiite	0.110	0.160	*Hibbert et al. (2012*
94-17	olivine cumulate	0.031	0.160	*Hibbert et al. (2012)*
94-44	olivine cumulate	0.088	0.048	*Hibbert et al. (2012*
P13	olivine	0.09	0.07	*Williams et al. (2005)*
P13	orthopyroxene	0.21	0.09	*Williams et al. (2005)*
P13	clinopyroxene	0.30	0.12	*Williams et al. (2005)*

Supplemental data table 1: Iron isotope data (δ^{57}Fe) of whole-rock and mineral samples used in Figure 3.