

glossary of terms

BEE	Black economic empowerment
Bord and pillar	Underground mining method where ore is extracted from rectangular shaped rooms, leaving parts of the ore as pillars to support the roof. Pillars are usually rectangular and arranged in a regular pattern.
Concentrating	A process of splitting the ground ore in two fractions, one containing the valuable minerals, the other waste.
Cost per tonne/refined platinum ounce/refined PGM ounce	The cash cost of mining, concentrating, smelting, refining, marketing and corporate office expressed per unit of measure.
Decline	A shallow dipping mining excavation used to access the orebody.
Dense media separation	A means of separating reef from waste exploiting differences in density.
Development	Underground excavation for the purpose of accessing Mineral Reserves.
FIFR	Number of fatal injuries expressed as a rate per million man hours worked.
g/t	Grams per tonne. The unit of measurement of grade, equivalent to parts per million.
Group unit cost per refined platinum ounce/refined PGM ounce	The cash cost of mining, concentrating and other operating expenses (marketing, corporate office) expressed per unit of mine-to-market measure, as well as the cost of smelting and refining expressed per gross unit of measure.
HDSA	Historically disadvantaged South Africans, being South African nationals who were, prior to 1994, disadvantaged whether by legislation or convention.
Headgrade	The value, usually expressed in parts per million or grams per tonne, of the contained mineralisation of economic interest in material delivered to the mill.
In situ	In its natural position or place.
IRS	Impala Refining Services Limited
Kriging	A geostatistical estimation method that gives the best unbiased linear estimates of point values or of block averages.
LTIFR	Number of lost time injuries expressed as a rate per million man hours worked.
Merensky Reef	A horizon in the Critical Zone of the Bushveld Complex often containing economic grades of PGM. The term "Merensky Reef" as it is generally used refers to that part of the Merensky unit that is economically exploitable, regardless of the rock type.
MF2	Two-stage milling and flotation circuit (mill-float, mill-float)
Milling	Grinding of ore into the fine particles to expose the valuable minerals.
NOx	Nitrous oxides contained in exhaust emissions.
PGE	Platinum group elements comprising six elemental metals of the platinum group. The metals are platinum, palladium, rhodium, ruthenium, iridium and osmium
PGM	Platinum group metals being the metals derived from PGE.
Seismic surveys	A geophysical exploration method whereby rock layers can be mapped based on the time taken for energy reflected from these layers to return to surface.
Smelting	A smelting process to upgrade further the fraction containing the valuable minerals.
Stoping	Underground excavations to effect the removal of ore.
UG2	A distinct chromitite horizon in the Critical Zone of the Bushveld Complex often containing economic grades of PGM.
Resource and Reserve definitions	SAMREC Code – The South African Code for Reporting of Mineral Resources and Mineral Reserves sets out minimum standards, recommendations and guidelines for Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves in South Africa. SAMREC was established in 1998 and modelled its Code on the Australasian Code for Reporting of Mineral Resources and Ore Reserves (JORC Code).

A **Competent Person** is a person who is a member of the South African Council for Natural Scientific Professions (SACNASP), or the Engineering Council of South Africa (ECSA), or the South African Council for Professional Land Surveyors and Technical Surveyors (PLATO) or any other statutory South African or international body that is recognised by SAMREC. A Competent Person should have a minimum of five years experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which that person is undertaking. If the Competent Person is estimating, or supervising the estimation of Mineral Resources, the relevant experience must be in the estimation, assessment and evaluation of Mineral Resources. If the Competent Person is estimating, or supervising the estimation of Mineral Reserves, the relevant experience must be in the estimation, assessment, evaluation and economic extraction of Mineral Reserves.

A **Mineral Resource** is a concentration (or occurrence) of material of economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable and realistic prospects for eventual economic extraction. The location, quantity, grade, continuity and other geological characteristics of a Mineral Resource are known, estimated from specific geological evidence and knowledge, or interpreted from a well constrained and portrayed geological model. Mineral Resources are subdivided, in order of increasing confidence in respect of geoscientific evidence, into Inferred, Indicated and Measured categories.

An **Inferred Mineral Resource** is that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that may be limited or of uncertain quality and reliability.

An **Indicated Mineral Resource** is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and /or grade continuity but are spaced closely enough for continuity to be assumed.

A **Measured Mineral Resource** is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and grade continuity.

A **Mineral Reserve** is the economically mineable material derived from a Measured and/or Indicated Mineral Resource. It is inclusive of diluting materials and allows for losses that may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and government factors. These assessments demonstrate at the time of reporting that extraction is reasonably justified. Mineral Reserves are subdivided in order of increasing confidence into Probable Mineral Reserves and Proved Mineral Reserves.

A **Probable Mineral Reserve** is the economically mineable material derived from a Measured and/or Indicated Mineral Resource. It is estimated with a lower level of confidence than a Proved Mineral Reserve. It is inclusive of diluting materials and allows for losses that may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction is reasonably justified.

A **Proved Mineral Reserve** is the economically mineable material derived from a Measured Mineral Resource. It is estimated with a high level of confidence. It is inclusive of diluting materials and allows for losses that may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, including consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction is reasonably justified.