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Cautionary Statement: The Exploration Targets reported herein are not JORC compliant Mineral Resources. The potential quantity and grade of the Exploration Targets are conceptual in nature, there has been insufficient exploration to determine a Mineral Resource and there is no certainty that further exploration work will result in the determination of a Mineral Resource.

#### COMPETENT PERSON'S STATEMENT

- The information contained in this report that relates to Exploration Results and Mineral Resources is based on information compiled by Mr. Peter Langworthy, a member of The Australasian Institute of Mining and Metallurgy. Mr. Langworthy is an employee of OmniGeoX Pty Ltd which is a consultant to BlackEarth. Mr. Langworthy has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves." Mr. Langworthy consents to the inclusion in this report of the matters based on the information in the form and context in which it appears.
- The information in this report that relates to the Exploration Target for the Maniry Graphite Project is extracted from the report entitled "Exploration Target Update" dated 14 August 2018 and is available to view on the Company's website www.blackearthminerals.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.
- The information in this report that relates to the Maiden Resource Estimation for Razafy at the Maniry Graphite Project is extracted from the report entitled "Update Maiden Resource Estimation for Razafy at the Maniry Graphite Project" dated 14 August 2018 and is available to view on the Company's website ( www.blackearthminerals.com.au ). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.
- The information contained in this report that relates to Mineral Resources is based on information compiled by Ms. Annick Manfrino, Principal of Sigma Blue and Manager Geology of BlackEarth Minerals. Ms. Manfrino is a member of The Australian Institute of Geoscientists and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activities undertaken to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves." Ms. Manfrino consecutive that is reported in the form and is the Competent Person for the resource estimation. Ms. Manfrino consents to the inclusion in this report of the matters based on her information in the form and context in which it appears.
- The information in this report that relates to the Maiden Resource Estimation for Haja at the Maniry Graphite Project is extracted from the report entitled "Update Maiden Resource Estimation for Haja at the Maniry Graphite Project" dated 27 December 2018 and is available to view on the Company's website (www.blackearthminerals.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Compatent Person's findings are presented have not been materially modified from the original market announcement.
- The information in this document that relates to metallurgical test work results is based on information compiled and reviewed by Mr David Pass, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Pass is an employee of BatteryLimits. Mr Pass has sufficient experience relevant to the mineralogy and type of deposit under consideration and the typical beneficiation thereof to qualify as a Competent Person as defined by the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code, 2012 Edition). Mr Pass consents to the inclusion in the report of the matters based on the reviewed information in the form and context in which it appears

## **CORPORATE SNAPSHOT**

CAPITAL STRUCTURE	
Number of Fully Paid Shares*	83.4m
Market Capitalisation (undiluted)	\$5.0m
Avg. Daily Trading Volume (1/1 – 30/4)	134,224
Share Price (10/05/19)	\$0.06
Number of Shareholders (31/03/2019)	1,572
Cash on Hand 30/04/2019	A\$1.934 million



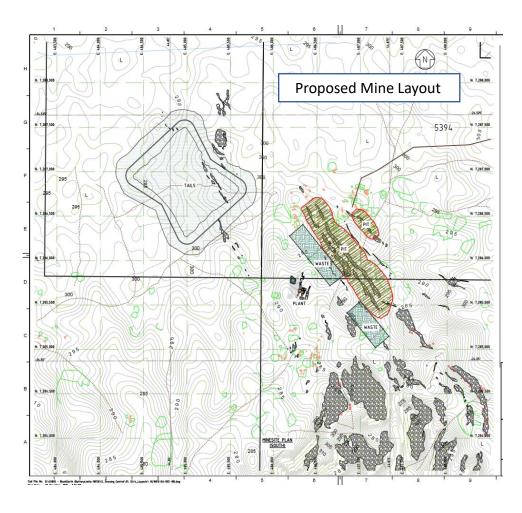


#### **ASX:BEM**

BlackEarth Minerals (ASX: BEM) is a mineral exploration and development company, led by a team of career mining experts, that have identified growing trends in graphite demand, and targeted assets around the world rich in specific types of high-value graphite.

<sup>\*</sup>Includes 26.7M shares escrowed until Jan 2020

## INVESTMENT CASE TECHNICAL VALUE



- Thorough understanding of geology, mineralogy & metallurgy
- Simple mining and processing to produce high value, high demand, coarse flake product, which is not competing with Chinese production
- Majority of the current resource sits on a 40 year mining lease
- Significant expansion potential at Maniry given BEM's tenement position and declared Exploration Target
- Low capital expenditure requirement
- The current Project study outcomes highlight that the Maniry Project is a robust and financially attractive graphite project by global standards

BEM has commenced offtake discussions and product test work in both Germany and USA, as part of the feasibility study

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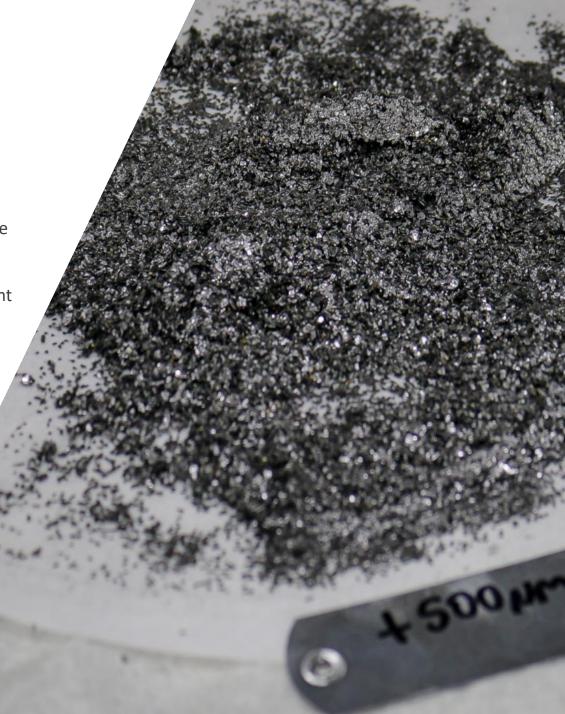


• The outlook for large flake high quality graphite remains highly positive for the next 10-15 years

Madagascar is a positive jurisdiction with 100+ years of graphite history, recent mining transactions and developments, and the ability to finance projects

 BEM Board and management have significant experience in all the key areas to successfully deliver the Maniry Project, with significant "skin in the game"

 Comparable to its peers, BEM has a very low enterprise value based on stage of development, technical value and potential returns





Project Life	10 Years
NPV @ 10% pre-tax	US\$ 103M
IRR pre-tax	42%
Project CAPEX Stage 1	US\$ 41M (500ktpa ore)
Project CAPEX Stage 2	US\$ 29M (1Mtpa ore)
Payback for Stages 1 & 2	3.7 years (Stage 1 - Only 2.7 years)
Annual graphite production	Av 30ktpa (Stage 1 – Years 1-3) Av 60ktpa (Stage 2 – Years 4+)

#### **Focus during Feasibility Study:**

Maximising basket price and feed grade

E.g. an increase in feed grade from 6.3% to 7.3%TGC results in a project NPV of US\$152M and an IRR of 55%

\*Refer ASX Releases 30 January 2019



## **GRAPHITE APPLICATIONS**

#### **Electric Vehicles**

- Bloomberg NEF estimates EVs would account for 28% of global new car sales by 2030, and 55% by 2040 with electric buses are expected to dominate their market even more decisively, reaching 84% global share by 2030
- Graphite is a critical commodity for EVs, used in the anodes of lithium-ion batteries

#### **Construction – Expandable Graphite**

- Graphite is a key material in the expandable graphite market, which is widely used in the next generation of fire-retardant material building materials.
- China is forecasted to require a total of 40Mtpa of fire-retardant building materials per year, and 5% of this product being made of graphite, this equates to 2 million tonnes of high quality large-flake graphite per year being consumed by the Chinese construction industry alone.
- To add context, it is estimated total global production of flake graphite in 2016 was approximately 860,000 tons with only a proportion of this material used to generate expandable graphite.



### **GRAPHITE NEWS**

Chinese suppliers have begun to acknowledge that new supplies from Mozambique and Madagascar are beginning to compete with Chinese suppliers with low cost and often higher quality feedstock

Benchmark Mineral Intelligence May 2019

In 2018, China became a major flake graphite importer for the first time in a generation, with flake volumes over 60,000 for the year while experiencing a fall of 12% in graphite exports

In February 2019 China imported approximately 13,500 tonnes of flake graphite.

The Chinese government is encouraging trade with Africa by means of zero tariffs on imported goods

Roskill April 2019

China's needs more coarse high grade flake... Today!

BlackEarth has recently appointed Eileen Hao, a graphite specialist with significant experience working in industrial minerals, metals and applications, specialising on lithium-ion battery materials and graphite applications both in China and globally.







## **MANIRY 2018 CHECKLIST**

- Commenced diamond drilling (March '18)
- First Maniry (Razafy) assays released (May '18)
- Detailed mineralogy completed (July '18)
- Indicated & Inferred Resource announced (August '18)
- Exploration Target released (August '18)
- Definitive met test work commenced (September '18)
- Scoping Study commenced (September '18)
- Definitive metallurgical results reported (December '18)
- Haja Resource announced (December '18)
- Scoping Study completed (January '19)



# 7 FACTORS FOR MINING SUCCESS

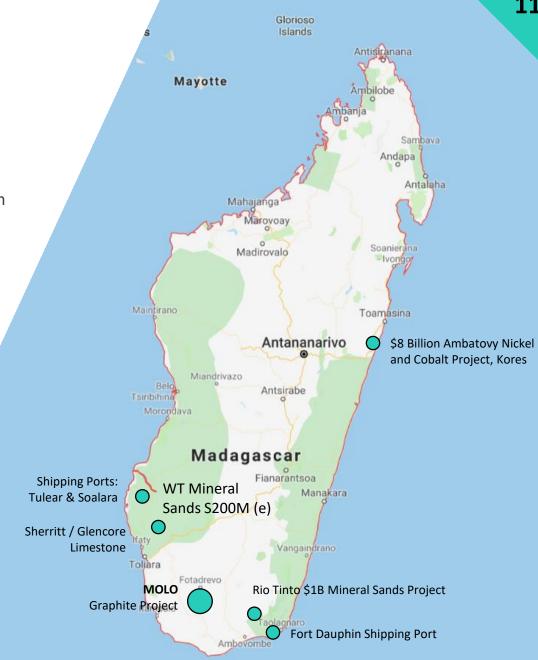




## **GEOPOLITICS MADAGASCAR**

- Open and transparent democratic elections held in late 2018
- The World Bank takes an active role in ongoing activities in the country. In March 2019, the World Bank announced:
  - USD\$90M to strengthen the National Social Protection Programs
  - USD\$150M to increase access to electricity services
  - Their support for the Land Certification Program
- In February 2019, the new Government gave the 'full go ahead' with approval to develop the Molo Graphite Project – located approximately 50km north of Maniry.
- Major global trading partners (export sales): China, US, France, Germany, Japan, Netherlands, UAE
- Resource companies active in Madagascar include: Base Resources and Total

Rio Tinto



## **GEOPOLITICS MADAGASCAR**

#### **MADAGASCAR**

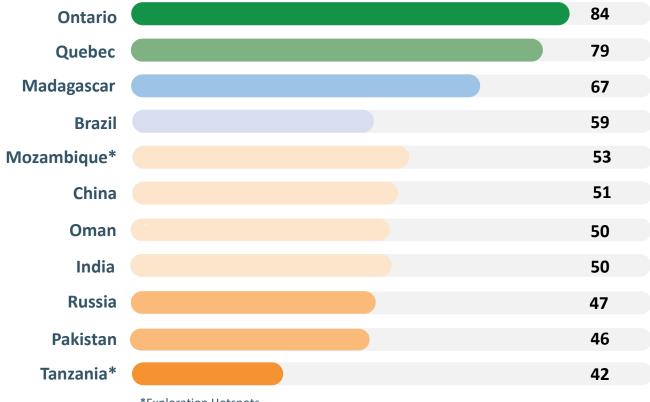
RISK SCORE = 67

"Low to Moderate Risk"

#### **FACT:**

Over 90% of graphite is produced from countries and regions considered "riskier" than Madagascar





<sup>\*</sup>Exploration Hotspots

Source: 2018 Mining Journal World Risk Report



 The Maniry Graphite Project contains the Razafy Resource, which predominantly sits on the 40 year granted Mining Lease, PE/5394 (expires 19/11/2042

 with an option to extend)

This provides BEM with a LOM of > 8 years just on resources located on its granted Mining Licences; > 20 years on total Resources at Maniry. Possibly further to this, an Exploration Target exists of 280-350Mt at 6-8%TGC

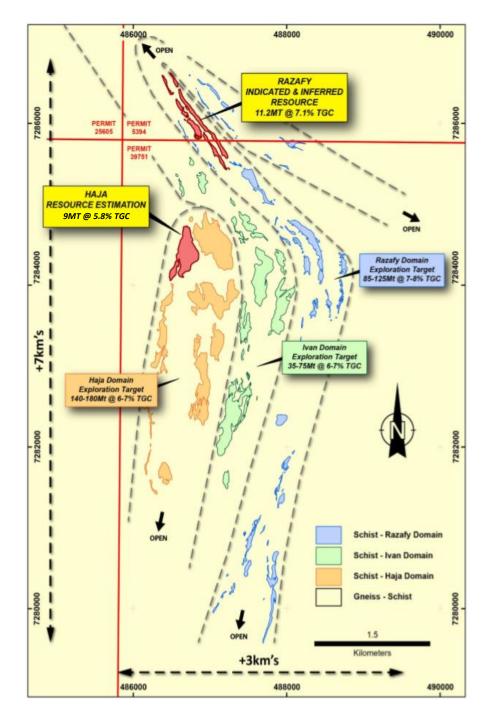
 Previous exploration indicates that the Razafy prospect is open within the existing Mining Lease to the north west and potentially via lens repetition to the east

 In 2019/20, BEM intends to convert its remaining Exploration Licences to Mining Licences



## THE MANIRY RESOURCE

- The financial model was built only on the Razafy Indicated Resource
- The results reflect a thorough approach and understanding derived from extensive sampling & assaying, XRF, XRD and optical petrographics
- 34 large-scale zones of outcropping graphite schist exist over an area of 7km
   x 3km
- Exploration Target\* of 260-380Mt at 6-8%TGC; significant upside



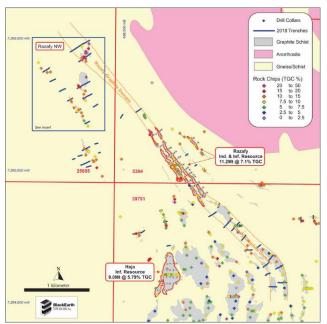
<sup>\*</sup> Refer to ASX announcement 14 August 2018

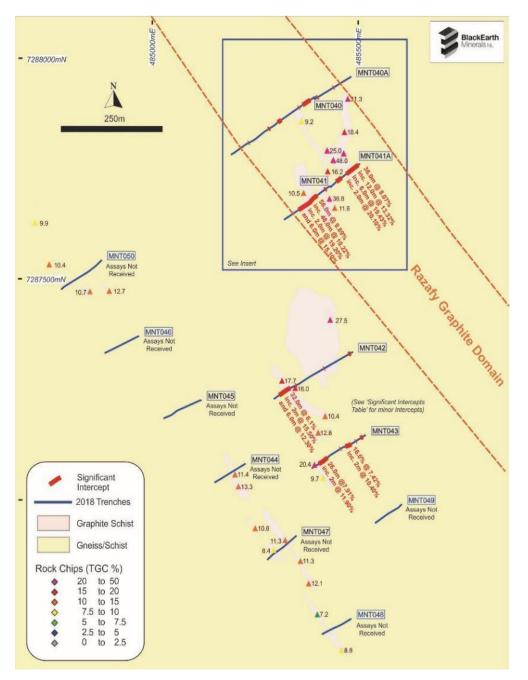
## RESOURCE HIGH GRADE UPGRADE

Recent trenching northwest of the Razafy Resource included:

- 56.0m @ 9.89% TGC, Incl. 48.0m @ 10.22% and 6.0m @ 15.10% (MNT041)
- 36.0m @ 8.07% TGC Incl. 12.0m @ 13.32% and 6.0m @ 19.43% (MNT041a)
- 26.0m @ 7.91% TGC (MNT043)

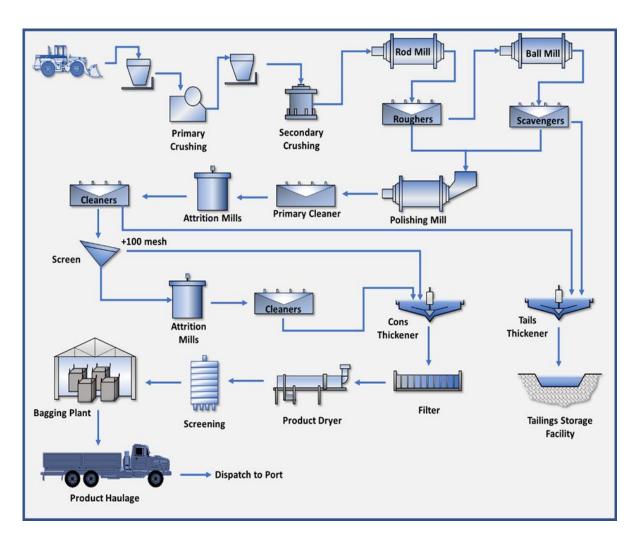
Follow up drilling to Indicated Resource is planned over the next 12 months for possible high grade early mine feed.







## **PROCESS**



- Simple and well proven technology
- Soft to medium ore hardness
- Low abrasion index
- Experienced operators available
- Consistent metallurgy along strike and at depth predictability
- Very low sulphide content



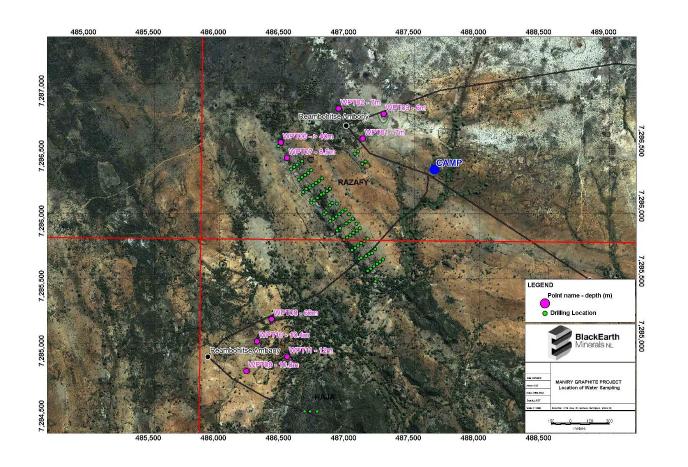
## **INFRASTRUCTURE WATER & POWER**

#### Water

- Numerous wells (6-60 metres deep) already exist in the immediate area – all were quality tested and are suitable for processing ore; ALS test work included the use of site water
- A nearby closed quarry in the area also contains significant water which was used during the drilling campaign in 2018
- Estimated annual rainfall 1020mm

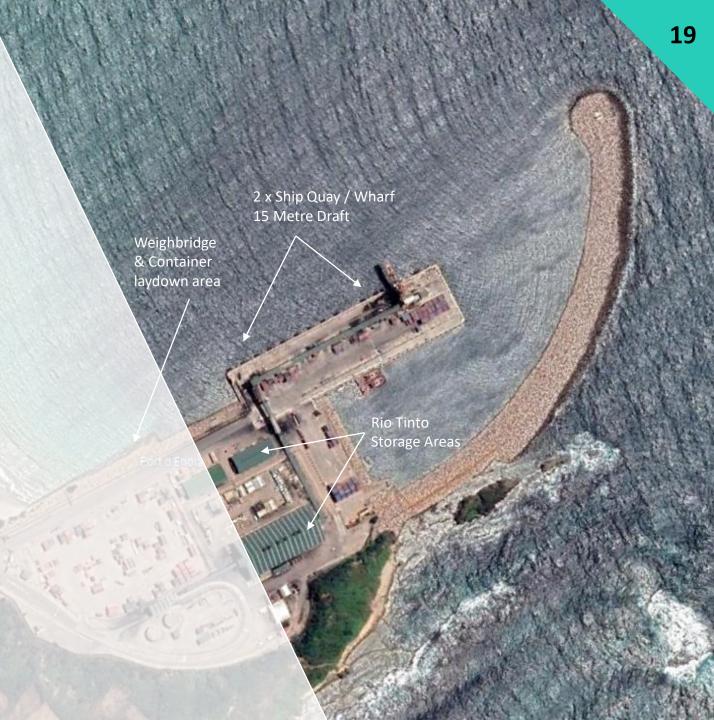
#### **Power**

- Total installed power for Stage 1 is 4MW
- It is planned to use diesel fired generators, diesel potentially sourced from either Ampanihy (30km) or from the ports of either Toliara or d'Ehoala (Fort Dauphin)



## INFRASTRUCTURE PORT

- The Port d'Ehoala was built by Rio Tinto under a public-private-partnership with the Government and completed in 2009
- It was built to export mineral sands product but remains open to the public being only approximately 45-50% utilised
- The port is managed independently by Strang Engineered Logistics; a subsidiary of Australian port operator – Patrick Terminals
- The port has a secure container storage area needed by BEM and has a 15m draft capable of berthing up to panamax sized cargo vessels



**MAJOR DEVELOPMENT TARGETS** 

- Complete the Bankable Feasibility Study (12 months)
- Product testing (battery and expandable) (6 months)
- Offtake arrangements (4-6 months during feasibility)
- Project finance (6 months 2019-20)
- Construction modular EPC (2020-21)
- Commissioning & first production (2021)
- Further exploration successes ongoing



## **KEY PEOPLE**

	Position	Experience (Years)	Graphite	Madagascar	Africa	Project Development	Corporate Commercial	Offtake Agreement
Phil Hearse	Chairman	40	<b>✓</b>	✓	✓	✓	✓	
Tom Revy	Managing Director	35	<b>✓</b>	✓	<b>✓</b>	✓	✓	<b>✓</b>
George Bauk	Non-Exec Director	25			<b>✓</b>	<b>✓</b>	✓	<b>✓</b>
Tracy Harris	Financial Controller	20			<b>✓</b>		<b>✓</b>	
Peter Langford	Competent Person	30	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>√</b>	
Eileen Hao	General Manager China	25		•	•	•		•
Annick Manfrino	Manager Geology	35	<b>✓</b>		<b>✓</b>		<b>✓</b>	<b>✓</b>
Jean Luc Marquetoux	Country Manager	30			<b>✓</b>	✓		
				✓	<b>✓</b>	✓	✓	

BEM has 10 staff in Antananarivo, Madagascar who are all Madagascar residents and include the Country Manager, technical staff, administration (incl. HR, accounting) and community liaison. Tom Revy remains the only fulltime staff member in Australia; 80-90% of expenditure goes into Madagascar / Maniry Project



## PRODUCT LARGE FLAKE GRAPHITE

#### **Final Concentrate Size and Grade Distribution**

Flake Size			Master Composite		
	(microns)	Mesh	Mass (%)	TGC (%)	
Super Jumbo	>500	38	2.8	95.8	
Jumbo	300 - 500	50 - 38	17.3 <b>50%</b>	96.1	
Large	180 - 300	80 - 50	29.8	95.6	
Medium	150 - 180	100 - 80	9.1	95.0	
Small	75 - 150	200 - 100	23.6	96.8	
Fine	<75	-100	17.4	96.1	

**High value product** 



## **THANK YOU**



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