

# Can You Improve Coal Quality

Rod Hatt



**Coal Combustion Inc.**  
Understanding the business of coal

**Raw Coal is ALWAYS Cheapest**



**Can you increase CV  
for market conditions  
or better price**

**What makes CV go down**  
**Rank – MAF – Oxygen**  
**Moisture – Bed + Surface**  
**Ash and Rocks**

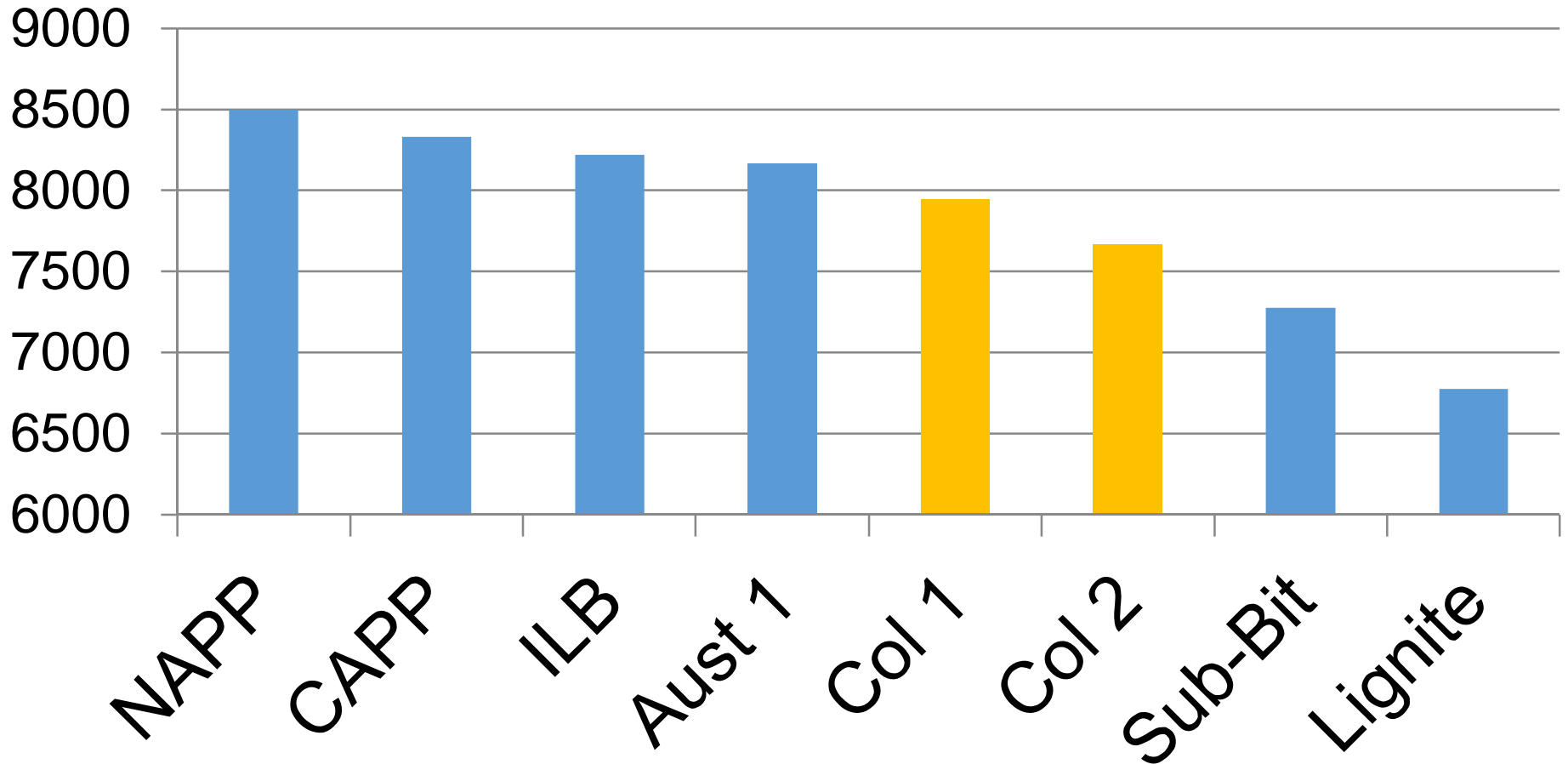
**What can you change**

**Rank – MAF – Oxygen**

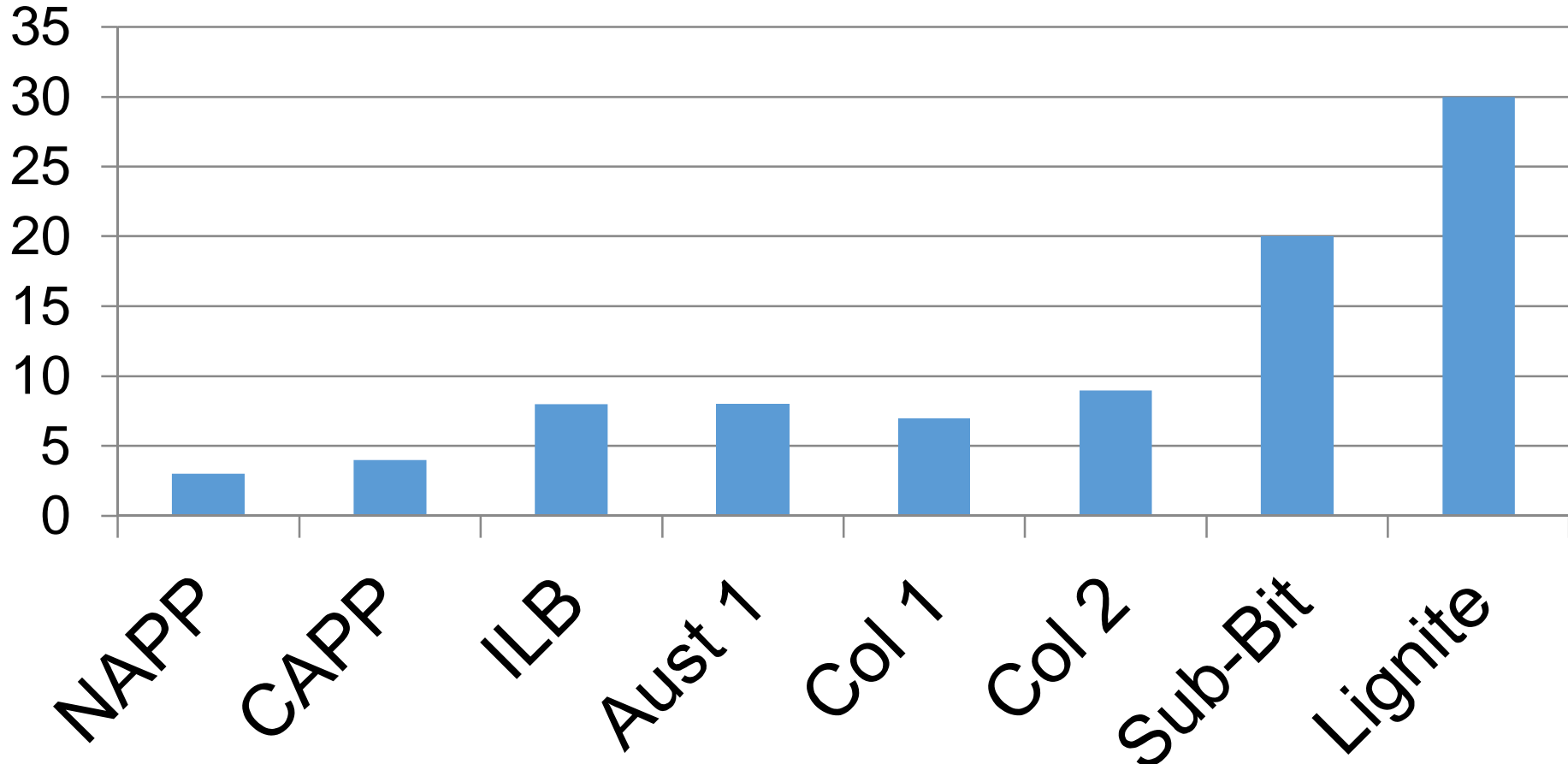
**Moisture – Bed + Surface**

**Ash and Rocks**

# MAF CV Kcal/Kg



# Bed Moisture



**What can you change**

**Rank – MAF – Oxygen**

**Moisture – ed + Surface**

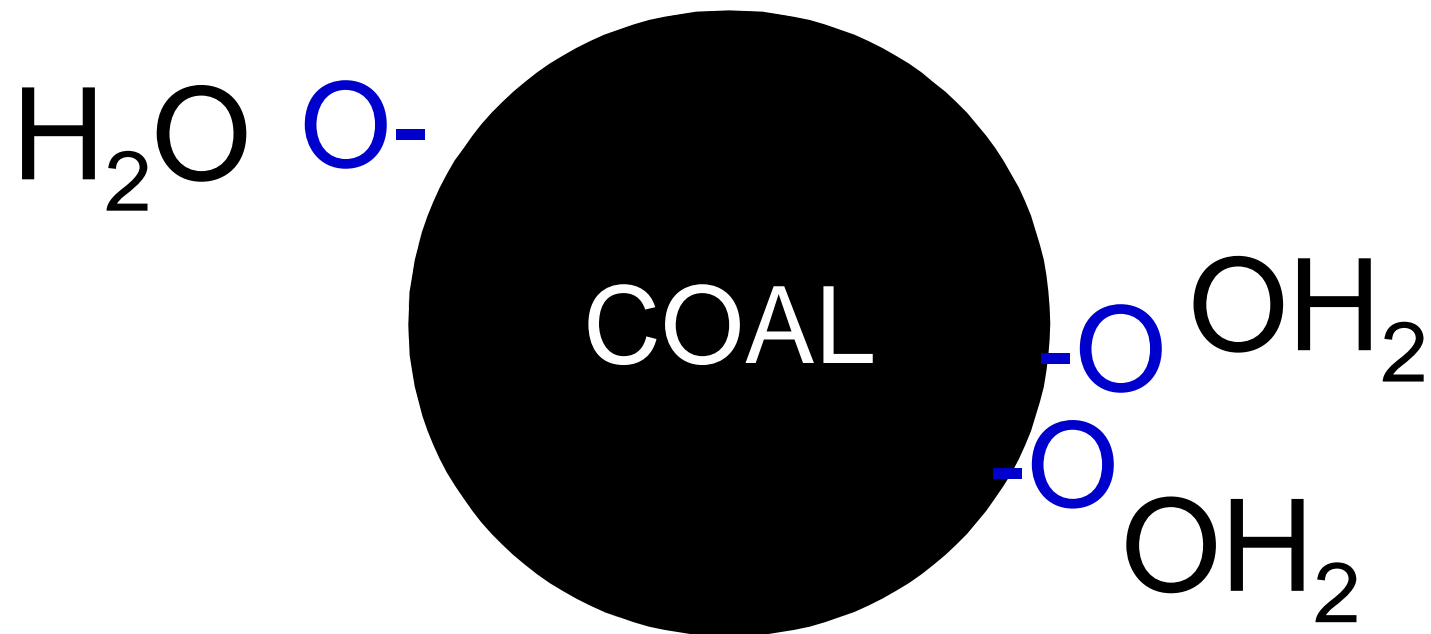
**Ash and Rocks**





# Chemistry

Like Likes Like



Low rank coals (low MAF, high Ox) have higher moisture levels



**Never saw a dried sub-bit  
coal successfully used**

**Thermal**

**Coal**

**Gas**

**Microwave**

**Oil Boil**

**Etc. etc.**

**What can you change**

**Rank – MAF – Oxygen**

**Moisture – Bed + Surface**

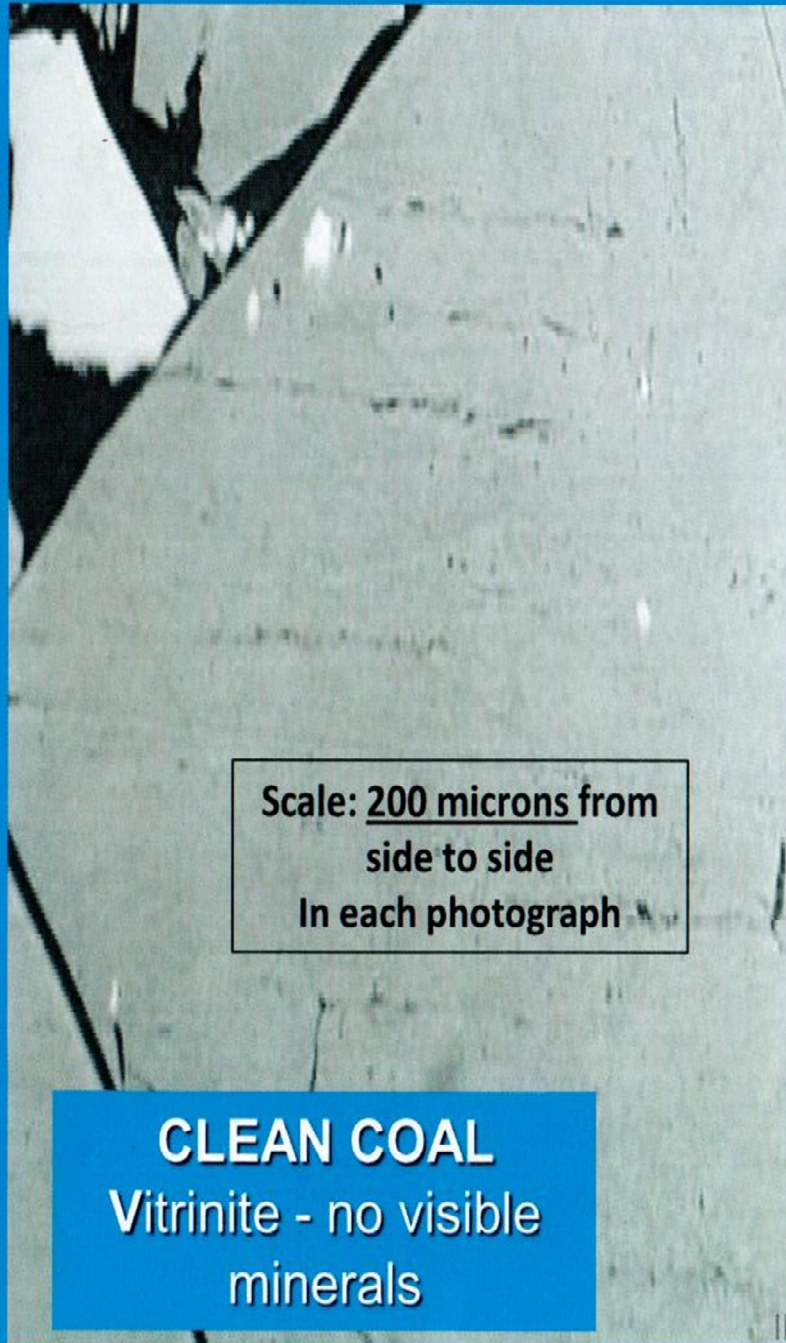
** and Rocks**

**High Fusion Temp Ash**

**RAW COAL ASH**

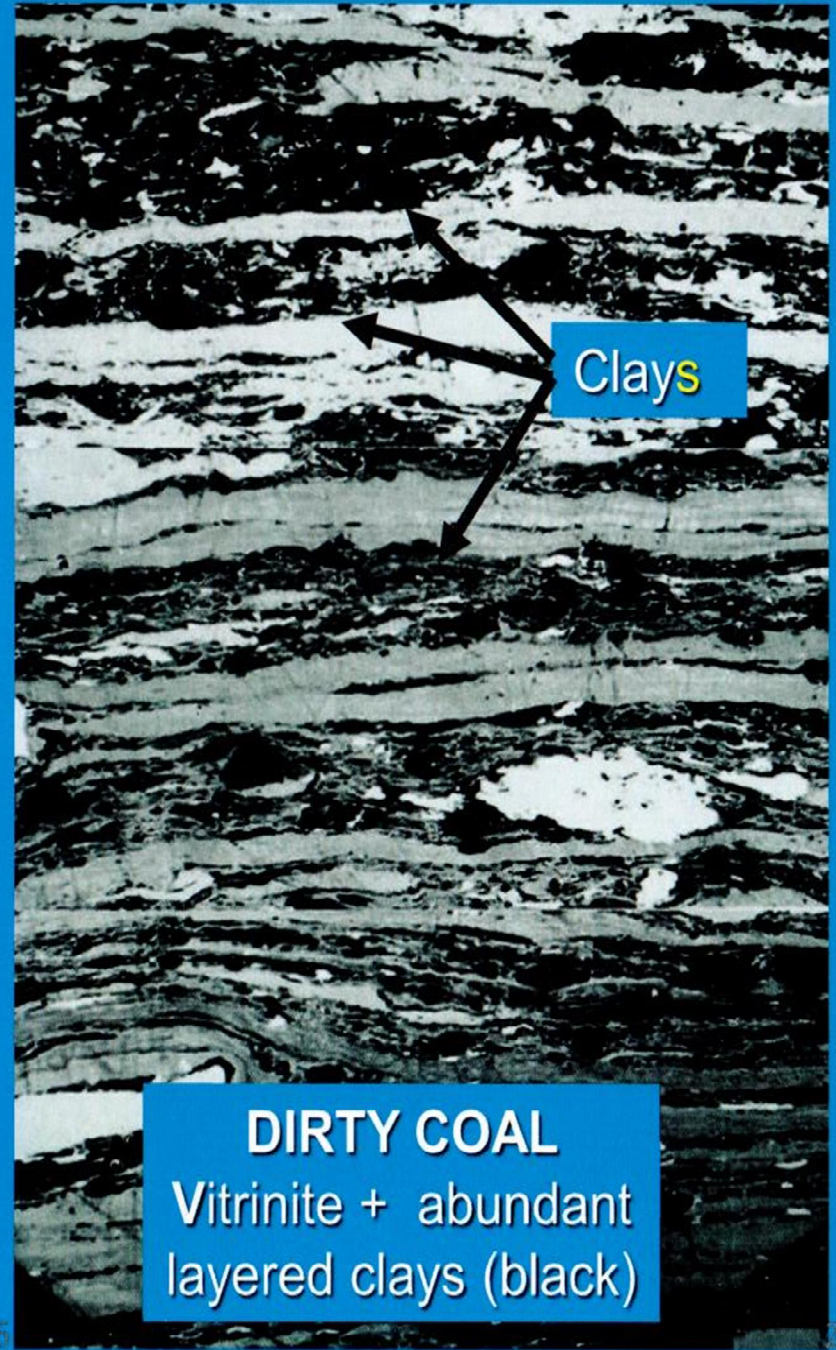
**CLEAN COAL ASH**

**Low Fusion Temp Ash**



Scale: 200 microns from  
side to side  
In each photograph

**CLEAN COAL**  
Vitrinite - no visible  
minerals



Clays

**DIRTY COAL**  
Vitrinite + abundant  
layered clays (black)

# Remove Rocks-Only Option

Selective Mining

Blending

Rotary Breaker

Air Tables

Wash Plant













What you need to know  
to wash coal:

Capacity

Partial wash - Raw/Wash

End use . Met/Thermal

Equipment Brand

Delivery/Load outs

Site Geology



# All About Tons Recovery

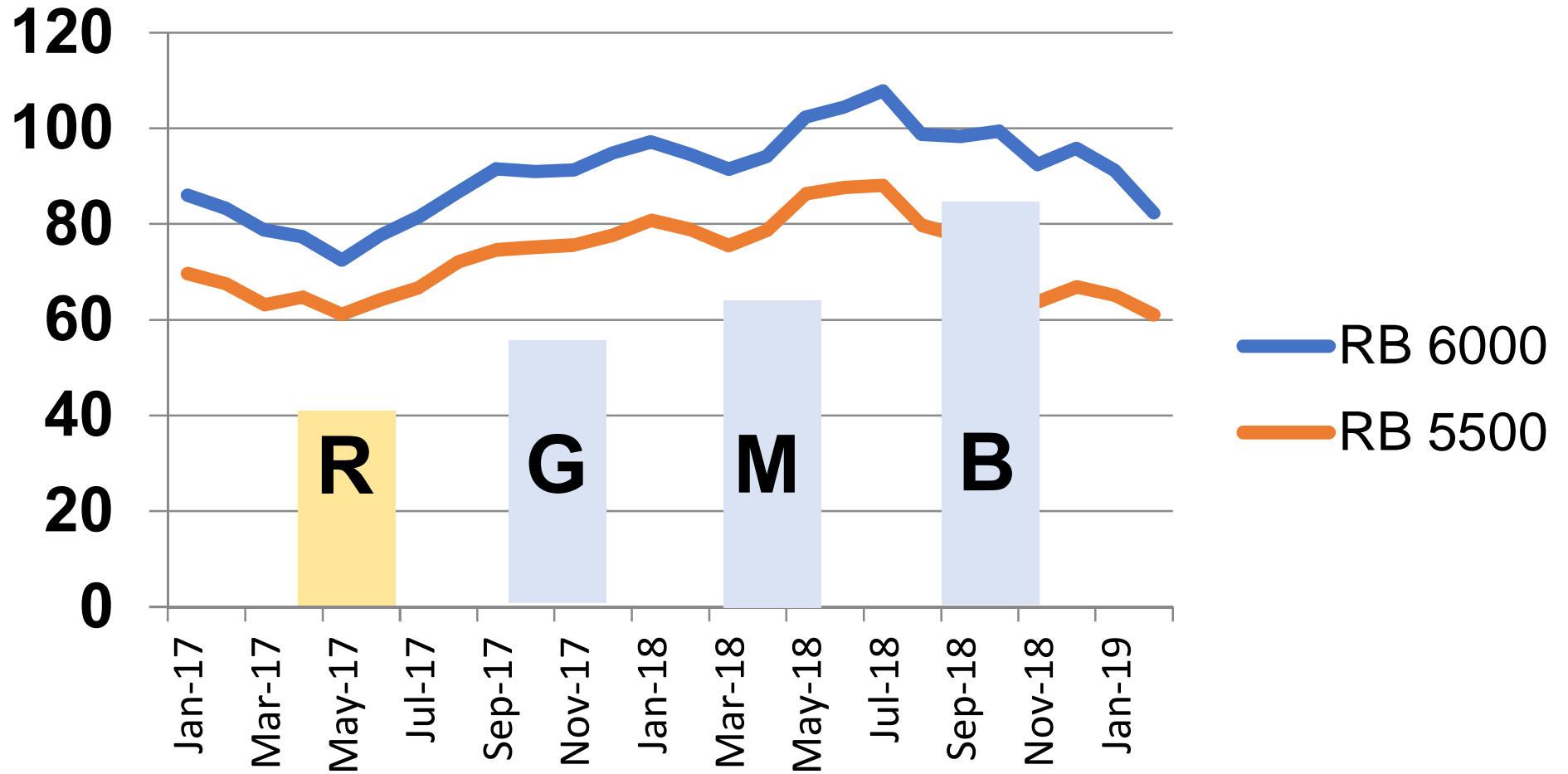
Good 85%

Medium 70%

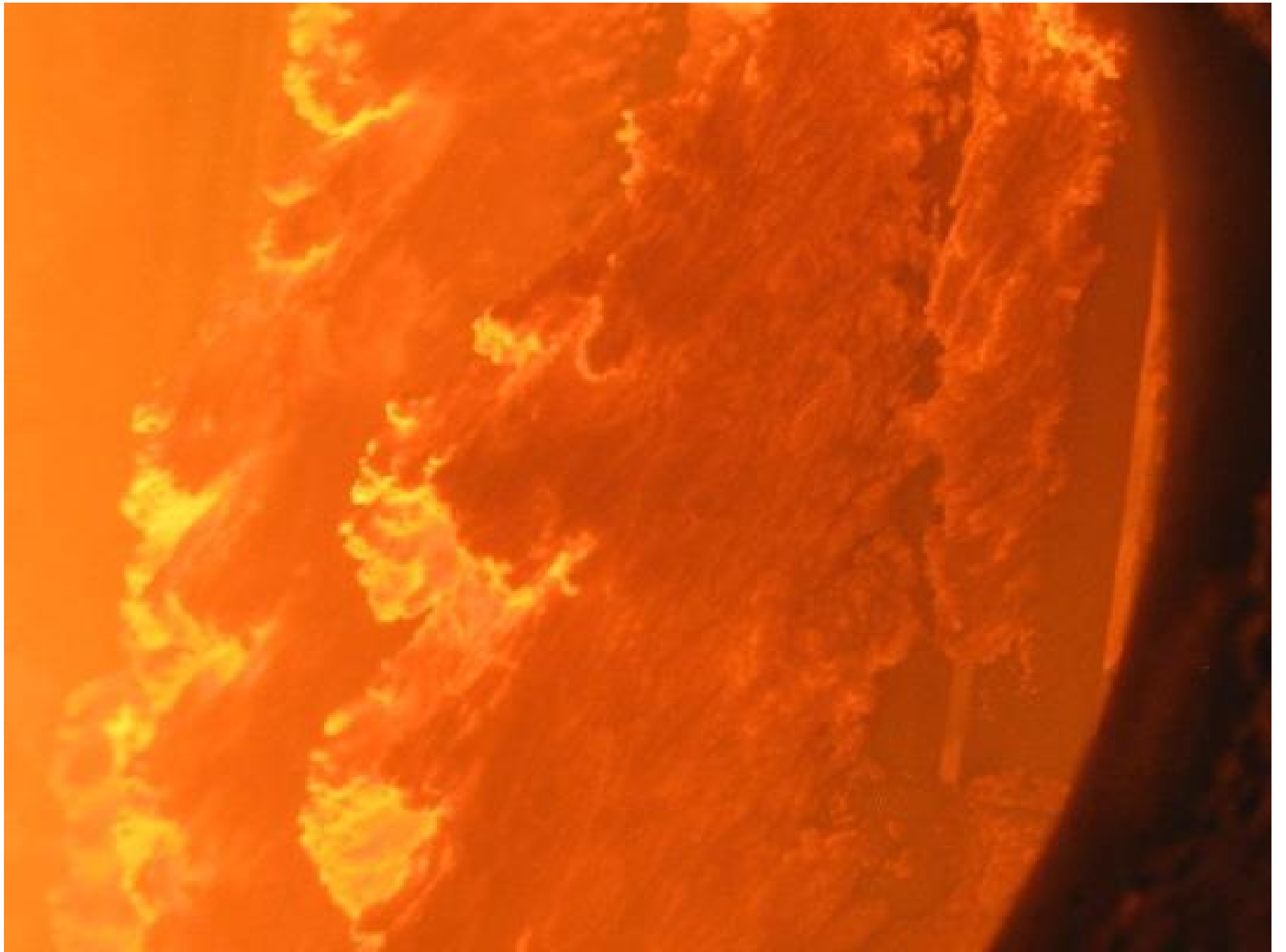
Bad 50%



# Rich Bay FOB IHS Price











# Ash Disposal Cost in Coal Price

<u>Coal Ash</u>	<u>8%</u>	<u>15%</u>
Low \$5	\$0.3	\$0.6
Med \$15	\$1.0	\$2.0
High \$50	\$3.5	\$7.0

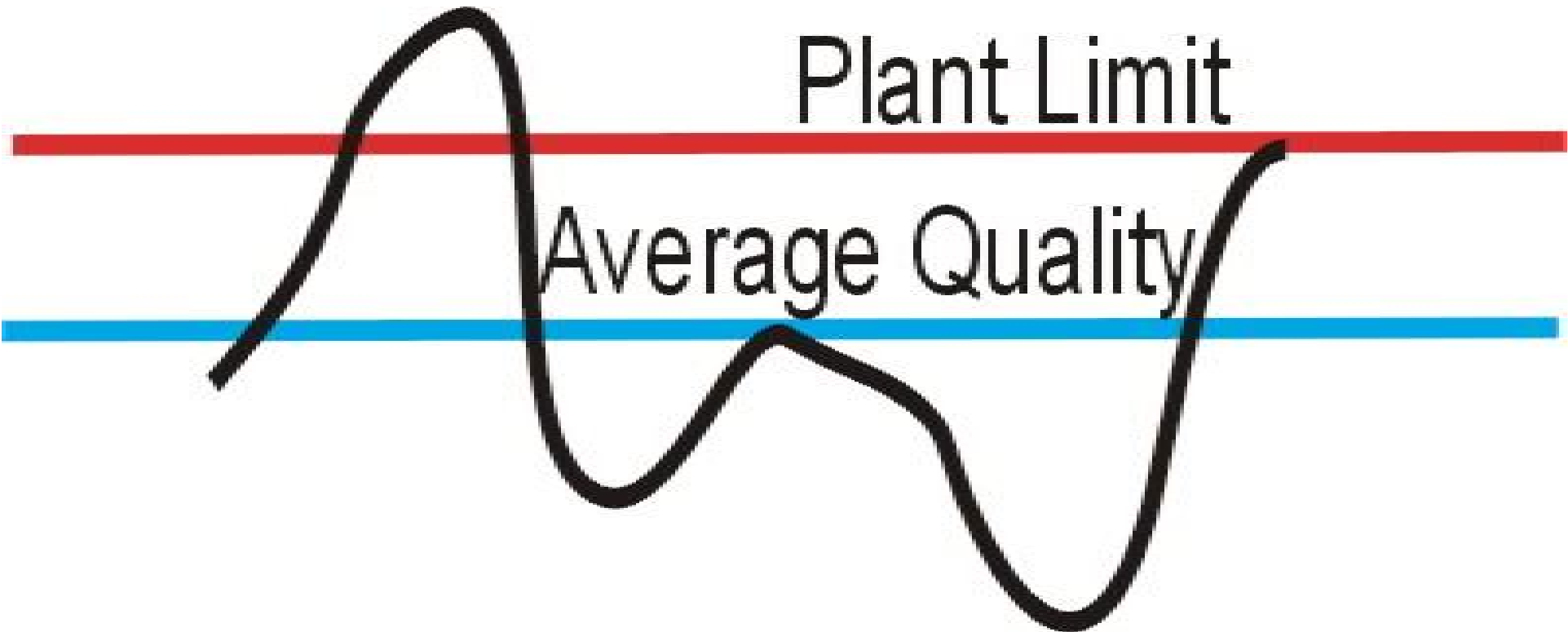
Plant Limit



Average Quality

Plant Limit

Average Quality





Thank you IHS and Colombia



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