

## CREDIT OPINION

25 April 2019

Update

 Rate this Research

### RATINGS

#### Braskem S.A.

Domicile	Sao Paulo, Sao Paulo, Brazil
Long Term Rating	Ba1
Type	LT Corporate Family Ratings
Outlook	Stable

Please see the [ratings section](#) at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

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### CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

## Braskem S.A.

### Update to credit analysis

#### Summary

The Ba1 rating reflects [Braskem S.A.](#)'s (Braskem) standalone credit profile and operating risks. The rating is supported by its size as the largest petrochemical company in Brazil and in the Americas by production capacity of resins, with historically above-industry-average operating margins because of high capacity utilization rates, long-term client relationships and product customization. The rating also reflects the company's dominant market position in Brazil and its geographic diversification, with operations in the US, Mexico and Europe. Finally, the company's good credit metrics and adequate liquidity (excluding the project finance debt classified as short term debt) are additional positive credit considerations.

Challenges to the company's credit metrics include the timid economic growth in the Brazilian market, which somewhat limits sales volumes in Brazil, and the pressure on polyethylene (PE) spreads in 2019 because of new capacity ramping up in the US, with the risk that excess supply may dilute Braskem's demand in established markets. The rating also factors in the company's exposure to naphtha and gas prices, and its dependence on [Petroleo Brasileiro S.A. - PETROBRAS](#) (PETROBRAS, Ba2 stable) for the supply of a large portion of those inputs in Brazil and on [Petroleos Mexicanos](#) (Baa3 stable) for ethane supply in Mexico. A deceleration in global demand for resins and basic petrochemicals could pose an additional challenge. Additional credit concerns include the company's extended delay in filing its 20-F report related to fiscal-year 2017 in NYSE, potential penalties coming from judicial disputes in Brazil and the weak credit profile of Braskem's controlling shareholder Odebrecht S.A. (Odebrecht).

#### Credit strengths

- » Largest producer of thermoplastic resins in the Americas, with a 66% market share in Brazil, the largest polypropylene (PP) producer in the US and the largest PE producer in Mexico
- » Good product and geographic diversification
- » Strong liquidity and a sound financial policy
- » Increased feedstock diversification through investments in natural gas-based projects and through international expansion

## Credit challenges

- » Modest economic growth in Brazil, a key market for Braskem
- » A commodity-based company, exposed to volatility in petrochemical spreads and supply-demand dynamics in the global and regional markets
- » High dependence on PETROBRAS and Petroleos Mexicanos for feedstock supply in Brazil and Mexico, respectively
- » Uncertainties related to judicial disputes in Brazil, to the filing of the 20-F report related to fiscal-year 2017 and to the weak credit profile of its controlling shareholder

## Rating outlook

The stable outlook reflects our expectation that Braskem's credit metrics will remain strong in 2019, despite the pressure on PE spreads as a result of new capacity ramping up in the US, with an adjusted EBITDA margin of around 20% on a sustained basis. Also, we expect the company to be able to continue with its growth projects, while keeping leverage within its target of 2.5x net debt/EBITDA, and to maintain its financial discipline in dividend payments.

## Factors that could lead to an upgrade

An upgrade of Braskem's rating requires the track record of a conservative financial policy amid the financial difficulties of Odebrecht. An upgrade would also require clearer visibility into potential liabilities coming from judicial disputes in Brazil and consequences from the company's delay in filing its 20-F report. Quantitatively, an upgrade would also require:

- » leverage (as measured by the ratio of total adjusted debt to EBITDA) sustained below 3.0x (3.2x in 2018, incorporating Mexico's project finance debt)
- » maintenance of sound liquidity
- » positive free cash flow generation

## Factors that could lead to a downgrade

The rating could be strained if Braskem faces material liabilities from litigations and class actions in addition to the amount associated with the global agreement related to Lava Jato signed in December 2016, or if the company assumes substantial risks related to greenfield projects. Furthermore, negative pressure on the rating could result from:

- » weaker operating results
- » persistently high leverage, with a ratio of total adjusted debt to EBITDA of 3.5x or above
- » a retained cash flow-to-total debt ratio lower than 15% (19.5% for 2018) on a sustained basis
- » dividend payout consistently above the minimum level established by the law, jeopardizing the company's liquidity profile

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on [www.moody's.com](http://www.moody's.com) for the most updated credit rating action information and rating history.

## Key indicators

Exhibit 1

### Braskem S.A.

USD Millions	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17	LTM (Dec-18)	Moody's 12-18 Month Forward View
Revenue	19,056.9	19,612.5	14,300.2	13,740.1	15,430.1	15,976.8	15,000 - 17,000
Net Property Plant and Equipmen	10,618.2	10,675.8	8,420.7	8,900.6	8,972.2	8,148.6	7,000 - 9,000
EBITDA Margin %	11.8%	11.6%	19.6%	24.3%	25.4%	20.1%	20% - 25%
Debt / EBITDA	5.3x	5.6x	4.6x	3.1x	2.8x	3.2x	2x - 3x
RCF / Debt	8.7%	4.1%	14.8%	4.6%	16.1%	19.5%	15% - 20%
EBITDA / Interest Expense	2.5x	2.1x	3.0x	3.4x	4.2x	4.5x	4x - 5x
EBIT / Avg. Assets	6.1%	6.7%	12.6%	15.5%	17.8%	15.1%	13% - 15%

All figures and ratios are calculated using Moody's estimates and standard adjustments. Moody's Forecasts (f) or Projections (proj.) are Moody's opinion and do not represent the views of the issuer. Periods are financial year-end unless indicated. LTM = Last 12 months.

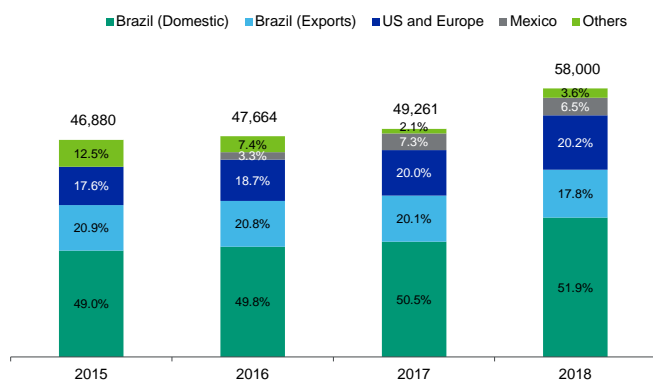
Source: Moody's Financial Metrics™

## Profile

Braskem S.A. (Braskem) is the largest producer of thermoplastic resins (PE, PP and polyvinyl chloride [PVC]) in the Americas, with an annual production capacity of 8.9 million tons. Braskem also has a production capacity of 10.7 million tons of basic petrochemicals such as ethylene, propylene and gasoline, among others, and 1 million tons of caustic soda and chlorine. In 2018, the company reported consolidated net revenue of BRL58 billion (\$15.3 billion), with an adjusted EBITDA margin of 20%.

Exhibit 2

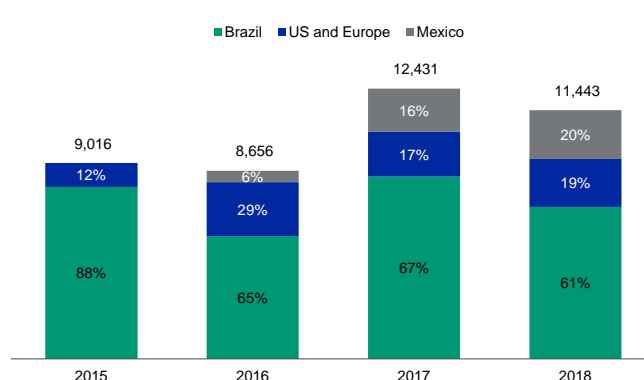
### Revenue breakdown In BRL million



Source: Braskem S.A.

Exhibit 3

### EBITDA breakdown In BRL million



Source: Braskem S.A.

## Detailed credit considerations

### Strong market position enhanced through acquisitions and expansion projects

Braskem is the only producer of PE and PP in Brazil, with a market share of 66% in polymers (PE, PP and PVC) in 2018. Braskem is the largest producer of PP in the Americas and the sixth-largest producer of polymers worldwide. The company will enhance its position in the US PP market with its new plant, which is expected to start operating in 2020, with \$675 million in capital spending (48.3% concluded as of year-end 2018).

The company's market share, combined with the lack of a sophisticated logistics and distribution system for resins in Brazil, provides it with significant advantages in Brazil's domestic market. Besides, Braskem has been expanding internationally, with exports from Brazil and international operations (Mexico, the US and Europe) representing about 48% of the company's consolidated revenue and 49% of EBITDA for 2018.

Geographic diversification should improve further as the company maintains its strategy of international expansion, enhancing product and feedstock diversification and reducing its inherent volatility to the petrochemical cycles, which will help offset the gradual recovery of Brazil's economy on the company's creditworthiness. As an example, with the start of its Mexican operations in 2016, Braskem has further diversified its feedstock base on competitive terms and has entered the Mexican PE market, which is supplied mostly by imports (70% of total consumption).

### **Modest demand recovery in Brazil and volatility in petrochemical spreads are inherent risks**

In Brazil, resin demand has substantially contracted since 2013, when the country reached the peak of its industrial production. The contraction was more severe for PVC than for PP and PE. In 2018, demand for resins in Brazil grew 2.4%, and we expect it to grow around 4% in 2019. In Mexico, resin demand has grown by around 3% over the past few years, and should continue at the same level in 2019, particularly supported by the replacement of traditional input materials. In the US and Europe, stable economic growth should support demand. The key risk lies in the Brazilian market, where the sustainability of the economic recovery in the long run is uncertain and the risk of an increase in PE imports from the US grows as new PE capacity is ramped up in the US but not absorbed by that market. Lower PE spreads will also limit the margins of the Mexican operations, although they should remain robust, even if lower than those recorded in 2017 (55%).

Apart from the challenges of demand in Braskem's market in Brazil, new PE capacity in the US and lower global demand will continue to hurt spreads and producers' margins, as well as increase volumes exported from the US to Braskem's markets, including Brazil, exerting pressure on local resin prices. Notwithstanding these challenges, lack of new capacity and growing demand for PP and PVC should support healthy spreads over the next couple of years. Braskem's product diversification helps offset its exposure to the volatility in regional and global petrochemical cycles.

Braskem's revenue is directly tied to commodity products, with volatile prices pegged to the US dollar, conducive to cyclical margins and cash flow. With about 100% of revenue, 80% of total costs and 98% of its total debt (including the debt related to the project in Mexico) pegged to the US dollar, the company is exposed to foreign-exchange movements. An appreciation of the Brazilian real would strain the company's margins and hurt export revenue when translated into Brazilian real while benefiting debt levels. Under Braskem's financial policies, the company needs to maintain at least 70% of its net debt in the US dollars.

### **International expansion and investments lead to feedstock diversification**

About 40% of Braskem's feedstock needs are related to naphtha, which has volatile pricing directly linked to oil. The company's operating margin is, therefore, highly dependent on international prices and petrochemical supply-demand dynamics. About 50% of the company's naphtha requirements in Brazil are supplied by PETROBRAS. The remaining needs are covered with imports from Algeria and other countries, based on annual supply agreements and spot prices.

The long-term naphtha supply contract with PETROBRAS expired in February 2014, and after almost two years of negotiations and amendments, a new long-term contract of five years was signed in December 2015. The contract sets the terms for the annual supply of 7 million tons of naphtha, at 102.1% of the international ARA (Amsterdam-Rotterdam-Antwerp) reference price, therefore reducing uncertainties about naphtha costs and assuring supply in the long run.

With the start of the Ethylene XXI complex in Mexico in 2016, naphtha-based feedstock has declined to about 40% from 72% of Braskem's production capacity. Additionally, Braskem invested about BRL380 million in its cracker in Bahia in the northeast of Brazil to enable the use of ethane for 15%-20% of its feedstock needs, replacing naphtha in the production of ethylene. As part of the company's feedstock diversification strategy, Braskem has signed in 2016 a 10-year contract with an affiliate of Enterprise Products Partners L.P. for the supply of ethane imported from the US, based on the Mont Belvieu international reference price. With the contract, 100% of Braskem's ethane consumption in Brazil is supplied by PETROBRAS and Enterprise. In terms of feedstock volume used in the production, naphtha represents about 40% of the total (down from 80% in 2009), followed by propylene (34%), natural gas (22%), ethanol (3%) and flex (naphtha-gas) with 3%.

In June 2017, Braskem announced that it obtained board approval to build a new PP plant in the US. With investments amounting up to \$675 million, the project will add 450,000 tons of annual PP production capacity and is scheduled to start in 2020, further diversifying Braskem's feedstock sources.

### Strong credit metrics and a sound capital structure

Braskem's credit metrics have improved significantly in the past few years, mainly because of its strategy of geographic, product and feedstock diversification, with the adjusted EBITDA margin reaching 25.4% in 2017 and 20.1% in 2018, a substantial improvement from the 2013-14 margins of around 11-12% and especially from adjusted EBITDA margins below 10% in 2011-12. With this improvement, Braskem demonstrated operating resilience to withstand the challenges in its key markets and the volatility inherent to petrochemical cycles.

Also, the company's strong cash generation and prudent financial strategies have contributed to the deleveraging of its capital structure. Braskem closed 2018 with an adjusted gross debt-to-EBITDA ratio of 3.2x, down from 4.6x as of year-end 2015. Excluding the BRL10.5 billion project finance debt related to Braskem-Idesa in Mexico, a joint venture between Braskem (75%) and Idesa (25%), which is consolidated into Braskem's financials, reported gross leverage declined to 2.3x as of year-end 2018. Regarding the debt related to the ethylene plant in Mexico, we recognize the non-recourse nature of the project finance debt and its low probability of delinquency, given its competitive advantages and expected high profitability. Nevertheless, we consider the impact of debt on our leverage calculations because it is consolidated in Braskem's financial statements (reflecting the 75% share of Braskem in Braskem-Idesa). We also believe Braskem would be compelled to assume the financial obligations of the complex (limited to its participation and contractual obligations), in case of need, because of its strategic importance to the company.

In 2018, Braskem's EBITDA declined to BRL11.6 billion from BRL12.5 billion in 2017 primarily because of lower sales in Brazil and in the US due to specific stoppages and weather-related events, and due to lower PE spreads. Also, the company's capacity utilization in Mexico declined because of supply issues with PEMEX, although the latter has complied with the deliver or pay contract and fully compensated Braskem for the lower ethane supply volumes. But, despite the lower EBITDA, Braskem generated BRL5 billion in free cash flow in 2018 (up from BRL143 million in 2017) and was able to reduce its absolute debt levels, including the tender offer of \$200 million of its perpetual notes.

We expect the company's profitability to improve slightly with expanding market share in Brazil and higher sales volumes in the US. Leverage should also improve from 2018 levels with a higher EBITDA stream and additional debt amortizations.

### Liquidity analysis

Braskem's strong liquidity should provide the company the financial flexibility necessary to ride through industry downturns and challenges in Brazil's domestic market. As of year-end 2018, Braskem had BRL7.9 billion in cash and about BRL3.8 billion in fully available committed credit facilities besides the expected ongoing access to lending from domestic and international banks. Also, the company has been able to sell part of its domestic trade receivables to investment funds (FIDC, BRL1.3 billion outstanding in December 2018) based on the historically low delinquency of its clients. The FDICs are committed to be available on a revolving basis until 2020 and 2023.

In the audited financial statements for fiscal 2016 there has been a substantial increase in the company's short-term debt, a consequence of the allocation of the entire project finance debt (BRL10.5 billion) under Braskem-Idesa to short-term debt, a situation that continued in 2017 and 2018. This was a consequence of the breach of covenants under the project finance contract that funded the project and is consolidated into Braskem's financials, even though it is non-recourse to Braskem. Braskem-Idesa is not in compliance with certain operational requirements or milestones set by the project finance contract. The company is working to obtain a waiver, and we understand that this reclassification does not pose a liquidity risk from a potential acceleration of the entire project finance debt.

Braskem's liquidity was hurt by the fines under the global agreement, but the company's liquidity position can accommodate those outflows (\$957 million in total or about BRL3.1 billion). Accordingly, the company already paid BRL1.9 billion in liabilities, which include \$95 million to the US Department of Justice, \$65 million to the US Securities and Exchange Commission, CHF46 million to authorities in Switzerland and about BRL1 billion to the Brazilian authorities. The remaining balance of BRL1.2 billion to the federal prosecutors in Brazil and CHF65 million to the authorities in Switzerland will be paid over four and three years, starting January 2020 and June 2019, respectively.

An additional challenge to Braskem's liquidity could come from a judicial process related to environmental issues in the State of Alagoas (in the northeast of Brazil) and from the company's extended delay to file its 20-F report in NYSE. The Public Prosecutors

Office of Alagoas filed a lawsuit against Braskem, claiming that the company's rock salt extraction operations caused a geological phenomenon in a neighborhood in Maceió, Alagoas' capital. The prosecutor's office has requested the freeze of BRL6.7 billion in financial assets from Braskem. So far, the judge handling the case only blocked BRL100 million (representing only 1.2% of Braskem's total cash) and prohibited Braskem to distribute its announced BRL2.7 billion dividends in 2019.

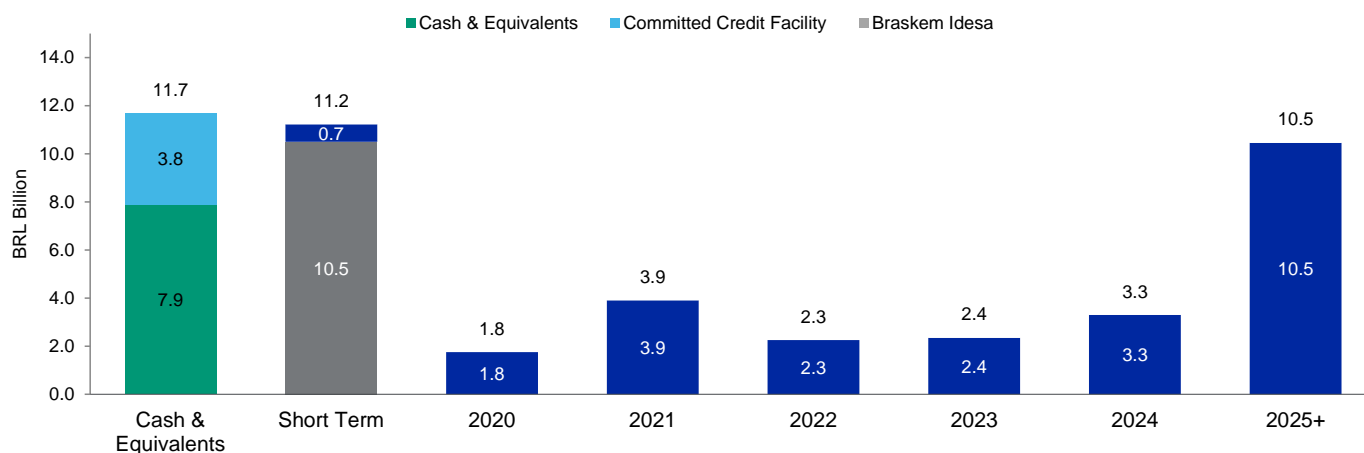
Furthermore, Braskem has been unable to file its 20-F for 2017, and now risks to be delisted from NYSE if it fails to file the report by May 16, 2019. Although no debt or financial obligation will be accelerated in a potential delisting from NYSE, we believe that the company's inability to file the report indicates some weaknesses in its internal controls and exposes Braskem to class actions from its ADR holders.

Braskem's liquidity could face some additional risk from dividends to its shareholder, Odebrecht. In 2016, Braskem distributed BRL2 billion in dividends related to 2015, a substantial increase from the BRL482 million dividends distributed in 2011, 2013 and 2014 (the company did not distribute dividends in 2012), although supported by stronger cash flow in the year. In 2017, Braskem paid BRL1 billion in dividends and in 2018 an additional BRL1.5 billion. In 2019, the company announced the distribution of BRL2.7 billion, but a judicial decision has suspended the payment.

To mitigate potential liquidity risks coming from large shareholder distributions, Braskem announced a new dividend policy in June 2018. The new policy limits dividend payments depending on leverage ratios and investment needs, and is credit positive because it provides more visibility and transparency to shareholder distributions, somewhat mitigating risks associated with Braskem's controlling shareholder's weak credit profile. The current Ba1 rating reflects our expectation that Braskem will manage dividend distributions without jeopardizing its leverage metrics and liquidity.

Exhibit 4

#### Braskem's debt amortization schedule As of December 2018, in BRL billion



Source: Braskem S.A.

## Ownership and corporate governance

Braskem is a listed company with shares traded on B3, NYSE and Latibex. Braskem has 50.1% of its outstanding voting shares (representing 38.3% of the outstanding total shares) held directly and indirectly by Odebrecht, the family-owned holding company of one of the largest conglomerates in Brazil. PETROBRAS is Braskem's second-largest shareholder, with 47.0% of its voting shares and 36.1% of its total shares. Six out of 11 board members of Braskem are independent. Seven board members out of the total are appointed by Odebrecht and the remaining four members are appointed by PETROBRAS. While Braskem's CEO and CFO are nominated by Odebrecht, one executive director (investments) is appointed by PETROBRAS. The relationship between Odebrecht and PETROBRAS is governed by a shareholders' agreement valid until 2045, a document available on the company's website.

Except for the filing of its 20-F report, Braskem is in full compliance with the corporate governance rules established by the NYSE for foreign corporates listed on the exchange, including the implementation of a code of conduct and a permanent fiscal council

(Odebrecht appoints one member out of five). In addition, the company is listed on the Spanish stock exchange for Latin American companies (Latibex).

Braskem's financial policies determine the maintenance of sufficient US-dollar-denominated cash to cover next six months of operations and one year of US debt maturities, and a balance of at least 70% of its net debt in US dollars. As part of its capital structure management, Braskem has a target net leverage (net debt-to-EBITDA ratio) of 2.5x and maintains minimum cash sufficient to cover its short-term debt, working capital needs, committed capital spending without funding, period taxes and derivatives mark-to-market, mitigating refinancing risks. Lastly, all financial policies are publicly available on Braskem's website.

According to the settlement made in the Lava Jato investigations, Braskem will also be subject to external, independent monitoring for three years from 2017 through 2020 (may be extended for an additional year) and will need to improve its compliance policies and standards.

In May 2016, Braskem's board created a compliance committee with independent members of the board of directors, and in August 2016, appointed a senior executive for the position of chief compliance officer. The chief compliance officer reports to the compliance committee, which reports directly to the board. The compliance committee has been working on a number of internal initiatives to strengthen Braskem's image and reputation.

### Rating methodology and scorecard factors

Braskem's grid-indicated rating under our Chemical Industry rating methodology maps to a Baa3 rating, one notch above its current rating. Prospectively, our 12-18-month forward view also maps to a Baa3 rating. The grid-indicated rating reflects Braskem's scale, business profile and good profitability, while the assigned rating is constrained by the overhangs related to its affiliation with Odebrecht, the extended delay in filing its 20-F report and potential liabilities coming from the judicial process in Brazil.

Exhibit 5

#### Rating factors

Braskem S.A.

Chemical Industry Grid [1][2]			Moody's 12-18 Month Forward View As of 4/17/2019 [3]	
	Current FY 12/31/2018		Measure	Score
<b>Factor 1 : Scale (15%)</b>				
a) Revenue (USD Billion)	\$16.0	A	\$15 - \$17	A
b) PP&E (net) (USD Billion)	\$8.1	A	\$7 - \$9	A
<b>Factor 2 : Business Profile (25%)</b>				
a) Business Profile	Baa	Baa	Baa	Baa
<b>Factor 3 : Profitability (10%)</b>				
a) EBITDA Margin	20.1%	Baa	20% - 25%	Baa
b) ROA (Return on Average Assets)	15.1%	A	13% - 15%	Baa
<b>Factor 4 : Leverage &amp; Coverage (30%)</b>				
a) Debt / EBITDA	3.2x	Ba	2x - 3x	Baa
b) RCF / Debt	19.5%	Ba	15% - 20%	Ba
c) EBITDA / Interest Expense	4.5x	Ba	4x - 5x	Ba
<b>Factor 5 : Financial Policy (20%)</b>				
a) Financial Policy	Ba	Ba	Ba	Ba
<b>Rating:</b>				
a) Indicated Outcome from Scorecard		Baa3		Baa3
b) Actual Rating Assigned				Ba1

All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. This represents Moody's forward view, not the view of the issuer, and unless noted in the text, does not incorporate significant acquisitions and divestitures.

Source: Moody's Financial Metrics™

## Appendix

Exhibit 6

## Peer comparison

(in USD millions)	Braskem S.A. Ba1 Stable			Mexichem, S.A.B. de C.V. Baa3 Stable			Sociedad Quimica y Minera de Baa1 Stable			K+S AG Ba2 Stable			Olin Corporation Ba1 Stable		
	FYE	FYE	LTM	FYE	FYE	LTM	FYE	FYE	LTM	FYE	FYE	LTM	FYE	FYE	LTM
	Dec-16	Dec-17	Dec-18	Dec-16	Dec-17	Sep-18	Dec-16	Dec-17	Dec-18	Dec-16	Dec-17	Dec-18	Dec-16	Dec-17	Dec-18
Revenue	\$13,740	\$15,430	\$15,977	\$5,344	\$5,828	\$6,977	\$1,939	\$2,157	\$2,266	\$3,825	\$4,098	\$4,770	\$5,551	\$6,268	\$6,946
EBITDA	\$3,344	\$3,921	\$3,214	\$947	\$1,205	\$1,477	\$838	\$915	\$1,060	\$656	\$751	\$762	\$888	\$1,029	\$1,364
Total Debt	\$11,120	\$10,458	\$9,631	\$2,818	\$3,737	\$4,646	\$1,346	\$1,347	\$1,883	\$3,034	\$4,207	\$4,241	\$4,573	\$4,677	\$4,306
Cash & Cash Equiv.	\$2,083	\$1,138	\$1,431	\$714	\$1,900	\$879	\$515	\$630	\$556	\$163	\$233	\$204	\$185	\$218	\$179
EBITDA Margin	24.3%	25.4%	20.1%	17.7%	20.7%	21.2%	43.2%	42.4%	46.8%	17.2%	18.3%	16.0%	16.0%	16.4%	19.6%
ROA - EBIT / Avg. Assets	15.5%	17.8%	15.1%	6.6%	8.2%	10.3%	11.4%	14.4%	14.7%	2.5%	3.2%	2.2%	2.9%	3.9%	7.0%
EBITDA / Int. Exp.	3.4x	4.2x	4.5x	4.7x	5.9x	6.3x	12.4x	15.9x	12.6x	7.1x	6.6x	5.3x	3.7x	3.9x	4.6x
Debt / EBITDA	3.1x	2.8x	3.2x	3.0x	3.1x	3.1x	1.6x	1.5x	1.8x	4.9x	5.3x	5.7x	5.2x	4.5x	3.2x
RCF / Debt	4.6%	16.1%	19.5%	17.1%	19.5%	19.9%	15.4%	24.2%	13.8%	6.3%	11.2%	13.7%	10.6%	12.9%	22.1%

All figures and ratios are calculated using Moody's estimates and standard adjustments.

Source: Moody's Financial Metrics™

Exhibit 7

## Moody's-adjusted debt breakdown

## Braskem S.A.

(in US Millions)	FYE Dec-13	FYE Dec-14	FYE Dec-15	FYE Dec-16	FYE Dec-17	LTM Ending Dec-18
<b>As Reported Debt</b>	<b>9,890.4</b>	<b>10,501.1</b>	<b>10,016.5</b>	<b>10,375.4</b>	<b>10,058.8</b>	<b>9,210.4</b>
Pensions	18.7	26.0	25.4	27.7	47.3	47.4
Non-Standard Adjustments	820.2	785.2	641.7	716.7	352.3	373.4
<b>Moody's-Adjusted Debt</b>	<b>10,729.2</b>	<b>11,312.4</b>	<b>10,683.7</b>	<b>11,119.8</b>	<b>10,458.5</b>	<b>9,631.2</b>

All figures are calculated using Moody's estimates and standard adjustments.

Source: Moody's Financial Metrics™

Exhibit 8

## Moody's-adjusted EBITDA breakdown

## Braskem S.A.

(in US Millions)	FYE Dec-13	FYE Dec-14	FYE Dec-15	FYE Dec-16	FYE Dec-17	LTM Ending Dec-18
<b>As Reported EBITDA</b>	<b>2,406.0</b>	<b>2,388.6</b>	<b>2,844.8</b>	<b>1,762.5</b>	<b>3,638.8</b>	<b>2,567.6</b>
Pensions	0.8	6.0	4.6	2.5	6.7	4.0
Interest Expense – Discounting	-275.6	-224.8	-157.9	-146.4	-89.3	-74.9
Unusual	108.1	100.3	107.4	1,734.5	377.1	716.9
Non-Standard Adjustments	1.5	-1.7	-0.7	-8.7	-12.5	0.2
<b>Moody's-Adjusted EBITDA</b>	<b>2,240.9</b>	<b>2,268.3</b>	<b>2,798.2</b>	<b>3,344.5</b>	<b>3,920.8</b>	<b>3,213.8</b>

All figures are calculated using Moody's estimates and standard adjustments.

Source: Moody's Financial Metrics™



## Ratings

Exhibit 9

Category	Moody's Rating
<b>BRASKEM S.A.</b>	
Outlook	Stable
Corporate Family Rating	Ba1
<b>BRASKEM FINANCE LTD</b>	
Outlook	Stable
Bkd Senior Unsecured	Ba1
<b>BRASKEM AMERICA FINANCE COMPANY</b>	
Outlook	Stable
Bkd Senior Unsecured	Ba1

Source: Moody's Investors Service

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