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Michael DiPasquale* (mdipasq@okstate.edu), Department of Mathematics, 401 Math Sciences Building, Stillwater, OK 74078. *The toric ring of a two-borel ideal is Koszul.*

Let M and N be two monomials of the same degree, and let I be the smallest Borel ideal containing M and N . We show that the toric ring of I is Koszul by constructing a quadratic Gröbner basis for the associated toric ideal. Our proofs use the construction of graphs corresponding to fibers of the toric map. As a consequence, we deduce that the Rees algebra is also Koszul, giving a positive answer to a question posed by Conca. We conclude with remarks on the normality and the Cohen-Macaulay property of the toric ring. This is joint work with Francisco, Mermin, Schweig, and Sosa. (Received July 14, 2017)