

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
28 August 2008 (28.08.2008)

PCT

(10) International Publication Number  
**WO 2008/103255 A1**

(51) International Patent Classification:

**B01J 23/00** (2006.01) **C07C 253/24** (2006.01)  
**B01J 23/28** (2006.01) **C07C 253/26** (2006.01)  
**B01J 27/057** (2006.01) **C07C 51/215** (2006.01)

(21) International Application Number:

PCT/US2008/001842

(22) International Filing Date:

12 February 2008 (12.02.2008)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

11/675,838 16 February 2007 (16.02.2007) US  
11/732,213 3 April 2007 (03.04.2007) US  
12/011,954 29 January 2008 (29.01.2008) US

(71) Applicant (for all designated States except US): **INEOS USA LLC** [US/US]; 3030 Warrenville Road, Suite 650, Lisle, IL 60532 (US).

(72) Inventors: **LUGMAIR, Claus, G.**; 977 Walglen Court, San Jose, California 95136 (US). **COHEN, Steven, Alan**; 962 Prairie Avenue, Naperville, IL 60540 (US). **ZAJAC, Gerry, W.**; 2S 624 Marie Curie Lane, Warrenville, Illinois 60555 (US). **BHATTACHARYYA, Alakananda**; 2 S. 418 Chaucer Court, Glen Ellyn Illinois 60137 (US). **SUTRADHAR, Bhagya Chandra**; 1010 Meadowridge Drive, Aurora Illinois 60504 (US). **BRAZDIL, Frank, F., Jr.**; 22 W. 061 Marston avenue, Glen Ellyn, Illinois 60137 (US).

(74) Agent: **YUSKO, David, P.**; INEOS USA LLC, 3030 Warrenville Road, Suite 650, Lisle, IL 60532 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(54) Title: PROCESS FOR THE AMMOXIDATION OF PROPANE AND ISOBUTANE USING MIXED METAL OXIDE CATALYSTS

(57) Abstract: A process for the ammoxidation of a saturated or unsaturated or mixture of saturated and unsaturated hydrocarbon to produce an unsaturated nitrile, said process comprising contacting the saturated or unsaturated or mixture of saturated and unsaturated hydrocarbon with ammonia and an oxygen-containing gas in the presence of a catalyst composition comprising molybdenum, vanadium, antimony, niobium, tellurium, optionally at least one element select from the group consisting of titanium, tin, germanium, zirconium, hafnium, and optionally at least one lanthanide selected from the group consisting of lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, dysprosium, holmium, erbium, thulium, ytterbium and lutetium. Such catalysts are characterized by very low levels of tellurium in the composition. Such catalyst compositions are effective for the gas-phase conversion of propane to acrylonitrile and isobutane to methacrylonitrile (via ammoxidation).



WO 2008/103255 A1