

January 6, 2011

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Mr. Jeff Wiese  
Associate Administrator for Pipeline Safety  
Pipeline Hazardous Materials and Safety Administration  
US Department of Transportation  
Pipeline Safety, PHP-1  
1200 New Jersey Avenue, SE  
Second Floor, E22-321  
Washington, DC 20590

**Subject: Amended Joint Petition of Evonik-Degussa Corporation and UBE Industries to Revise Title 49 Code of Federal Regulations Section 192.121 and 192.123 to Permit Use of Polyamide 12 (PA12) at Higher Pressures**

**Reference Docket ID: PHMSA-2007-29042**

Dear Mr. Wiese

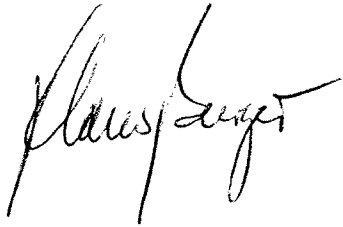
Evonik-Degussa Corporation and UBE Industries are pleased to submit their revised joint petition to amend the Federal pipeline safety regulations in 49 CFR Part 192 by incorporating specific requirements within §192.121 and §192.123 for PA12 piping systems.

Specifically, this revised joint petition seeks to strengthen the overall requirements within the previously filed petition (June 2009) under Docket No. PHMSA-2007-29042.

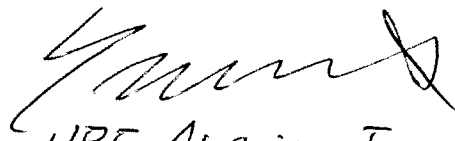
As you know, Evonik and UBE have committed extensive resources and performed rigorous evaluation (laboratory and field evaluations) to ensure that their PA12 materials can provide gas utility companies with a safe and proven alternative to extend the use of thermoplastic materials and replace ageing steel piping systems. To date, the PA12 material has been tested more than any other material prior to its use and approval. The results have amply validated the overall strength and durability of the PA12 material and piping systems against known threats and failure mechanisms.

Since our initial request and subsequent amended filing during June 2009, there has been no communication from PHMSA regarding any technical issues and/or need for additional information. We hope and pray that the PHMSA will act on this petition and advance this petition towards a Notice of Proposed Rulemaking (NPRM) in the near term in order to secure industry feedback and comments. We strongly believe that the PA12 material can stand on own its merits and there is ample technical data which demonstrate its increased performance attributes and benefits.

Sincerely,



EVONIK DEGUSSA CORP.  
VP&GM AMERICAS HP



UBE America Inc.  
General Manager.

cc: Richard Sanders - PHMSA

JAN 18 2011

**AMENDED JOINT PETITION OF EVONIK-DEGUSSA  
CORPORATION AND UBE INDUSTRIES TO REVISE  
THE PIPELINE SAFETY REGULATIONS**

**Revise Section 192.121 to Increase Design Factor  
Used in the Formula to Calculate Maximum Design Pressure  
For Polyamide 12 (PA12) Piping Systems**

**Revise Section 192.123 to Include Maximum Design Pressure  
Limitations for Polyamide 12 (PA12) Piping Systems**

January 6, 2011

**BEFORE THE  
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION  
OFFICE OF PIPELINE SAFETY**

**UNITED STATES DEPARTMENT OF TRANSPORTATION  
WASHINGTON, D.C.**

**Revise Section 192.121 to Increase the Design Factor )  
Used in the Formula to Calculate Maximum Design Pressure )  
For Unplasticized Polyamide 12 (PA12) Piping Systems )**

**Revise Section 192.123 to Include Maximum Design Pressure )  
Limitations for Polyamide 12 (PA12) Piping Systems )**

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**PETITION**

**I. BACKGROUND**

This amended petition seeks to strengthen the language contained within the previously filed petition related to incorporating specific requirements for Polyamide 12 (PA12) piping system within §192.121 and §192.123 under Docket Number: PHMSA-2007-29042.

Based on recent discussions with PHMSA staff and advances in the ASTM standardization activities, the proposed revisions will ensure that the only those Polyamide 12 piping materials which conform to stringent performance based requirements are utilized for gas distribution applications.

**II. AMENDMENTS AND REVISIONS TO PREVIOUSLY FILED PETITION  
CHAPTER I--RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION,  
DEPARTMENT OF TRANSPORTATION**

**PART 192--TRANSPORTATION OF NATURAL AND OTHER GAS BY PIPELINE:  
MINIMUM FEDERAL SAFETY STANDARDS**

**Subpart C--Pipe Design**

***§192.121 - Design limitations of plastic pipe***

Subject to the limitation of §192.123, the design pressure for plastic pipe is determined by either of the following formulas:

$$P = 2S \frac{t}{(D-t)} (DF)$$

$$P = \frac{2S}{(SDR-1)} (DF)$$

[where] P = Design pressure, gauge, psig (kPa)  
S = For thermoplastic pipe, the HDB is determined in accordance with the listed specification at a temperature equal to 23°C (73°F), 38°C (100°F),

49°C (120°F), or 60°C (140°F); for reinforced thermosetting plastic pipe, 75,800 kPa (11,000 psi).

t = Specified wall thickness, mm (in.)

D = Specified outside diameter, mm (in.)

DF = 0.32 or

= 0.40 for nominal pipe size (IPS or CTS) 4-inch or less, SDR-11 or greater (i.e. thicker pipe wall), PA-11 pipe produced after January 23, 2009

= **or, 0.40 for unplasticized Polyamide 12 (PA12) pipe**

§192.123 - Design limitations for plastic pipe

(a) Except as provided for in paragraph (e) and (f) **and (X)** of this section, the design pressure may not exceed a gauge pressure of 100 psig (689kPa) for plastic pipe used in:...

**(X) The design pressure for unplasticized polyamide 12 (PA12) pipe produced after [insert effective date] may exceed a gauge pressure of 100 psig (689 kPa) provided that:**

**(1) The design pressure is determined in accordance with the equation defined in 192.121**

**(2) The design pressure does not exceed 250 psig (1728 kPa)**

**(3) The material is VESTAMID LX9030 or UBESTA 3035 as specified within ASTM F2785-09**

**(3) The pipe size is a nominal pipe size 6-inch or less; and the wall thickness may not be less than that listed in the table below**

<i>Nominal Pipe Size in inches</i>	<i>Minimum Wall Thickness in inches</i>	<i>Corresponding SDR values</i>
<i>½" CTS</i>	<i>0.090</i>	<i>7</i>
<i>¾" CTS</i>	<i>0.090</i>	<i>9.7</i>
<i>½" IPS</i>	<i>0.090</i>	<i>9.3</i>
<i>¾" IPS</i>	<i>0.095</i>	<i>11</i>
<i>1" IPS</i>	<i>0.119</i>	<i>11</i>
<i>1-1/4" IPS</i>	<i>0.151</i>	<i>11</i>
<i>1-1/2" IPS</i>	<i>0.173</i>	<i>11</i>
<i>2" IPS</i>	<i>0.216 in.</i>	<i>11</i>
<i>3" IPS</i>	<i>0.259 in.</i>	<i>13.5</i>
<i>4" IPS</i>	<i>0.333 in.</i>	<i>13.5</i>
<i>6" IPS</i>	<i>0.390 in.</i>	<i>17.0</i>

### III. DISCUSSION

#### *Proposed Change to Design Factor (DF = 0.40)*

There has been ample technical data and justification provided in previous submittals to support the proposed increase in the design factor for Polyamide 12 piping systems. Specifically, the cumulative results of both laboratory testing and field evaluations have shown that the Polyamide 12 (PA12) piping systems can safely operate within the pressure limitations developed using the 0.40 design factor. In addition, two installations under a special permit in the State of Montana and State of Mississippi have demonstrated that PA12 piping systems designed using the 0.40 design factor perform well over a range of installation environments and conditions.

#### *Specific Language related to Unplasticized Polyamide 12*

Both Evonik and UBE believe that the proposed change to cite the use of unplasticized PA12 material is an important amendment to the previously filed petition. By specifying the use of unplasticized PA12 materials, Evonik and UBE believe that this will ensure the physical, chemical, and mechanical stability of the polymer over the lifetime of the installed system.

#### *Specific Language to cite VESTAMID LX9030 and UBESTA 3035*

Again, Evonik and UBE believe that this is another important fundamental change to ensure the safe long term performance of unplasticized PA12 piping systems. In general, Polyamide 12 belongs to a general class of Polyamide materials, e.g. Polyamide 11, Polyamide 12, Polyamide 66, etc. Within each subcategory, there are again numerous subcategories.

The proposed change to cite both the VESTAMID LX9030 and UBSETA 3035 is a proactive attempt to “lock” the final formulation for the unplasticized PA12 materials. Previous experience with Polyamide 11 has shown that in the absence of specific language, changes made to the overall formulation can have a profound, in some cases negative, effect as evidenced by the premature oxidative degradation of the PA11 materials. Evonik and UBE believe that the inherent specificity of the proposed modification will ensure that no additional changes are made to the final formulation of PA12 materials without performing the necessary due diligence and undergoing the approval process.

#### *Specific Language to cite ASTM F2785-09*

Given the recent industry efforts to make independent ASTM Standards and Specifications for each thermoplastic material, the PA12 suppliers, led by UBE, performed comprehensive work to establish a standalone Polyamide 12 product specification. This specification contains comprehensive performance based requirements to ensure safe long term performance of PA12 pipe, tubing, and fittings.

#### *Revision to Table of Pipe Sizes*

The proposed revision to the table containing the allowable pipe sizes to be used for gas distribution applications is consistent with other industry petitions (AGA petition to increase design factor for PE). This change ensures that the minimum pipe wall thickness shall be 0.090 inches. Moreover, it effectively limits the pipe size and wall thickness combinations that have been proven through rigorous field tests.