PM Size Profile for Cotton Ginning Operations —PM3282

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1 Introduction

The current PM profile for cotton ginning operations is PM3281 [1], in which the ratio of PM_{10} to total particulate matter (TPM) is 0.447 and $PM_{2.5}$ to total is 0.067. Recently, the National Cotton Ginning Particulate Matter Emissions Study (NCGPMES) [2] has summarized the test results from its 50 individual study reports. The new size fraction values obtained from the study are proposed for use in updating the existing CARB cotton ginning profile[1]. The updated cotton ginning profile is PM3282. Table 1 lists the new size fractions. However, there is no update for the chemical profile from the current profile PM3281, in which the chemical speciation is unknown.

Table 1. PM3282 (Cotton Ginning) Size Fractions

PM size	*$PM_{2.5}$/TPM*	*PM_{10}/TPM*
Weight Fraction	0.0188	0.3255

2 Estimated Impacts of the Profile Update on the Emission Inventory

The new profile PM3282 will replace the current PM3281 for the categories associated with cotton ginning operations for all years (Table 2). CEPAM [3] inventory base year 2012 (California 2016 Ozone SIP Baseline Emission Projection, Version 1.02) was selected for estimating the impacts of the profile update. The 2012 statewide annual average TPM emissions of PM3282 related categories are 3.364 tons/day, 0.13% of the grand total statewide emissions (natural sources are excluded). The use of the new profile will cause a 72.0% decrease in the estimation of $PM_{2.5}$ emissions (Table 3).

Table 2. SCCs/EICs to be Associated with Cotton Ginning Operations

EIC/SCC	*NAMES*			
30200401	FOOD/AGRICULTURE	AGRIC. SERVICES	COTTON GINNING	UNLOADING FAN
30200402	FOOD/AGRICULTURE	AGRIC. SERVICES	COTTON GINNING	CLEANER
30200403	FOOD/AGRICULTURE	AGRIC. SERVICES	COTTON GINNING	STICK/BURR MACHNE

[1] The references will be updated once the summary data of the study is published (by Janet Spencer).

EIC/SCC	*NAMES*			
30200404	FOOD/AGRICULTURE	AGRIC. SERVICES	COTTON GINNING	MISCELLANEOUS
30200405	FOOD/AGRICULTURE	AGRIC. SERVICES	COTTON GINNING	EXTRCT FEEDR CLEANRS
30200406	FOOD/AGRICULTURE	AGRIC. SERVICES	COTTON GINNING	SAW GINNING
30200407	FOOD/AGRICULTURE	AGRIC. SERVICES	COTTON GINNING	LINT CLEANING
30200408	FOOD/AGRICULTURE	AGRIC. SERVICES	COTTON GINNING	BALING
30200409	FOOD/AGRICULTURE	AGRIC. SERVICES	COTTON GINNING	STCK/LEAF EXTRT CLNR
30200410	FOOD/AGRICULTURE	AGRIC. SERVICES	COTTON GINNING	GENERAL
30200411	FOOD/AGRICULTURE	AGRIC. SERVICES	COTTON GINNING	BURR MACHINE CLEANER
30200412	FOOD/AGRICULTURE	AGRIC. SERVICES	COTTON GINNING	STCK MACHINE CLEANER
30200415	FOOD/AGRICULTURE	AGRIC. SERVICES	COTTON GINNING	DRYING
30200499	INORGNC CHEM STRG	AGRIC. SERVICES	COTTON GINNING	NOT CLASSIFIED
42042060280000	FOOD AND AGRICULTURE	AGRICULTURAL CROP PROCESSING LOSSES	COTTON	SUB-CATEGORY UNSPECIFIED

Table 3. Emission changes resulted from PM profile update (2012)

State Annual Ave. Emissions	*Using Current PM3281 (tons/day)*	*Using New PM3282 (tons/day)*	*Change*	
			Emissions (tons/day)	*Percentage*
$PM_{2.5}$	0.225	0.0632	-0.162	-72.0%

References:

1. *California Air Resources Board Main Speciation Profiles,* 2015, California Air Resources Board, *Accessed*: October 20, 2015.
2. Buser, M.D., Whitelock, D. P., Boykin, J. C., and Holt, G. A. , *National Cotton Ginning Particulate Matter Emissions Study*, 2015.
3. *CEPAM,* 2015, California Air Resources Board, *Accessed*: October 19, 2015.