

MINING



Navigating the Global Waters

2015 SME ANNUAL CONFERENCE & EXPO
CMA 117TH NATIONAL WESTERN MINING CONFERENCE



February 15 - 18, 2015 | Denver, CO



CEMA 576

Belt Cleaner

Application Ratings

and What They Mean to You



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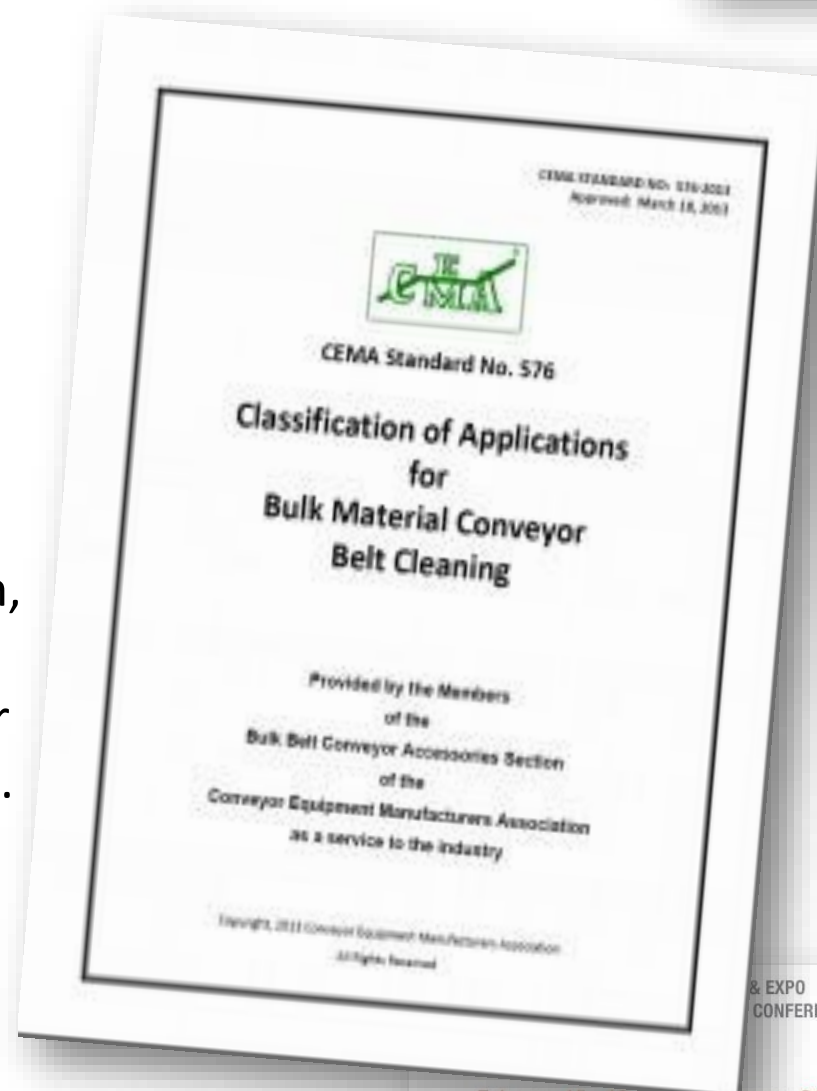
Belt Cleaner Application Rating



CEMA 576 Classification of Applications for Bulk Material Conveyor Belt Cleaning

Develops a rating of the difficulty of an application from the characteristics of an application, allowing a wiser choice to be made, so that the end user and cleaner supplier can BOTH be happier with the end result.

Available as free download
from CEMAnet.org.

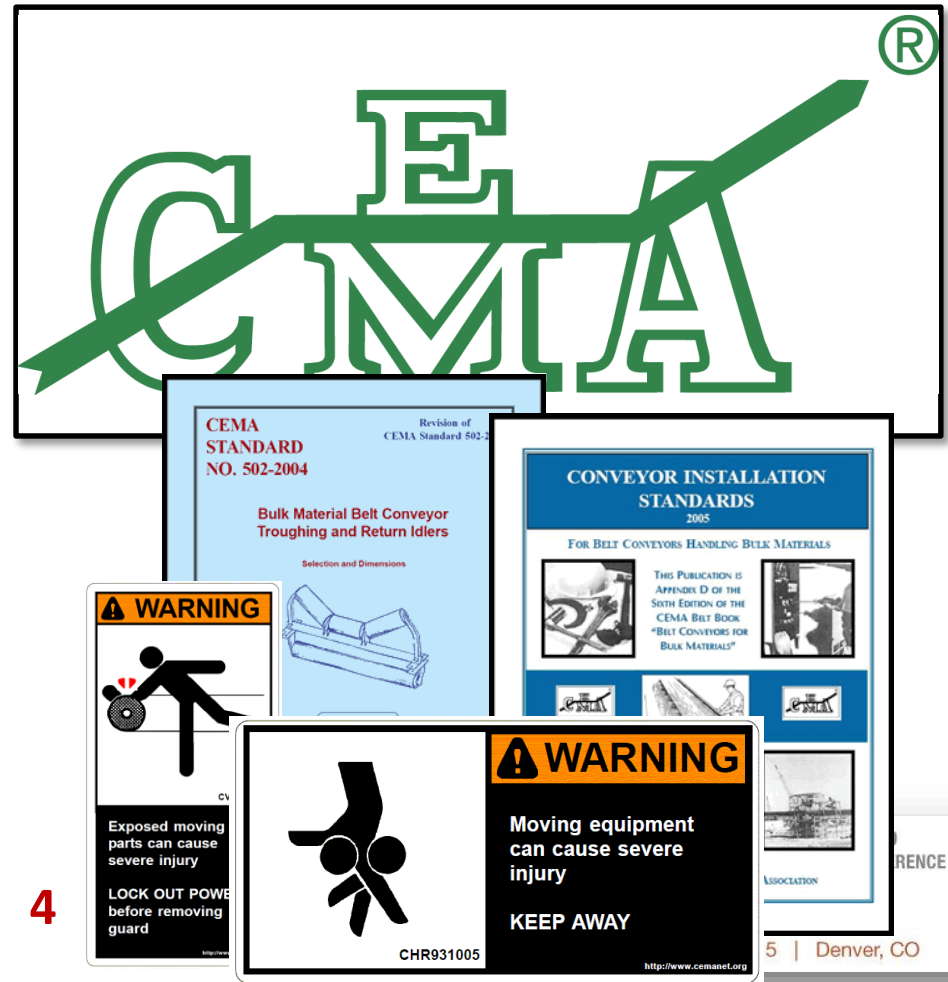


So what is CEMA?



Conveyor Equipment Manufacturers Association

- “Voice of North American Conveyor Industry.”
- Trade Association of Manufacturers and Designers of Conveyor Equipment.
- Established in 1933.
- From CEMANet.org, offers
 - Safety Labels,
 - Equipment Standards,
 - Application Guidescovering many types of conveyors (*bulk belt, chain, screw, roller conveyors for unit handling, bucket elevator.*)



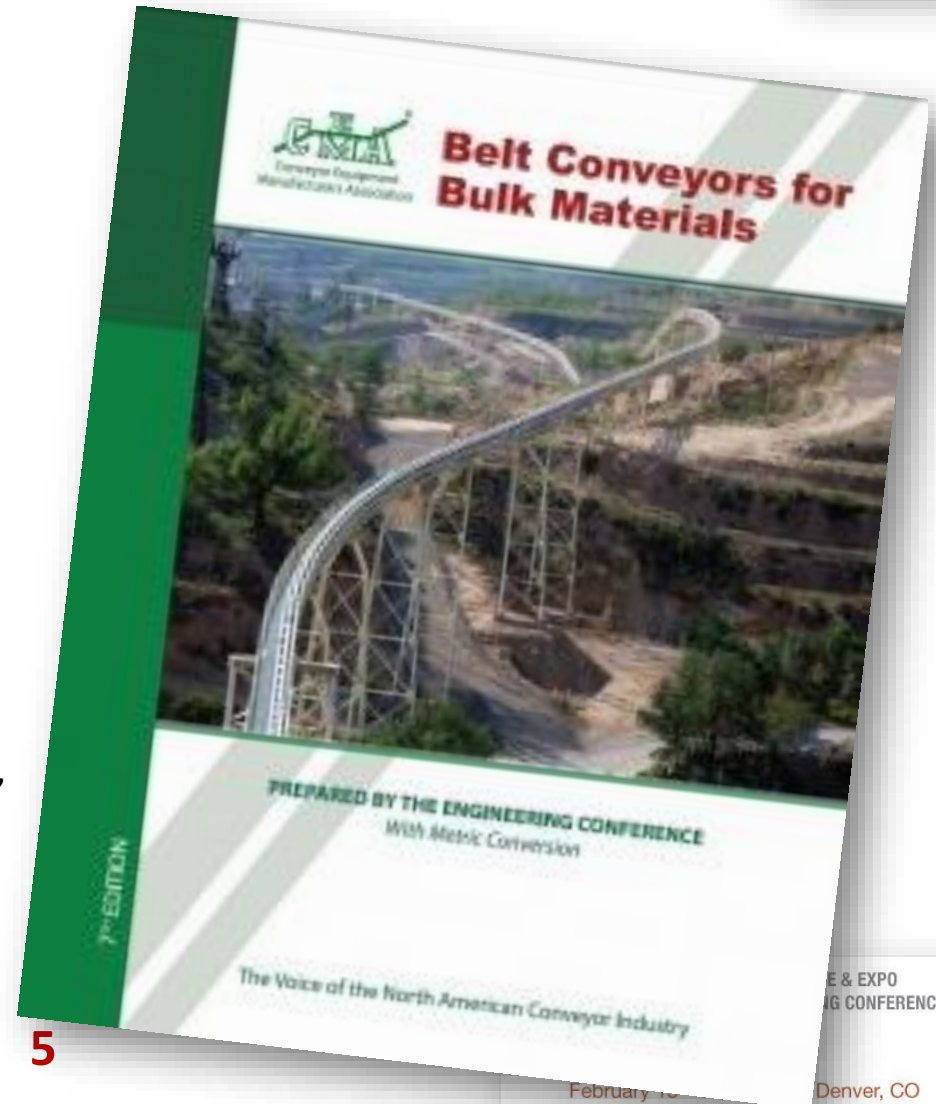
CEMA and bulk materials



One key emphasis of CEMA is Belt Conveyors for Bulk Materials: how to design them, use them and how to make them safer.

Publisher of “The CEMA Book”
“Belt Conveyors for Bulk Materials”
(Seventh edition published in 2014 includes the CEMA 576 Standard.

Editor and “Driving Force” for CEMA Book was R. Todd Swinderman, PE, retired President of Martin Engineering. Now Principal of RTodds Engineering LLC, Swinderman is consultant in the conveying of bulk materials for Martin Engineering, and others (rtodds-eng.com).



“Classification of Applications”



*“This standard has been established to provide a uniform **method** for determining the application class of any individual belt conveyor.*

*This application class **will assist in the selection of an appropriate conveyor belt cleaner or conveyor belt cleaner system for the application.***

By ranking the application, guidance concerning the needed ruggedness and durability of the applicable conveyor belt cleaner will be available.

Manufacturers voluntarily specify into which class their particular designs fall.”



Benefits for End Users



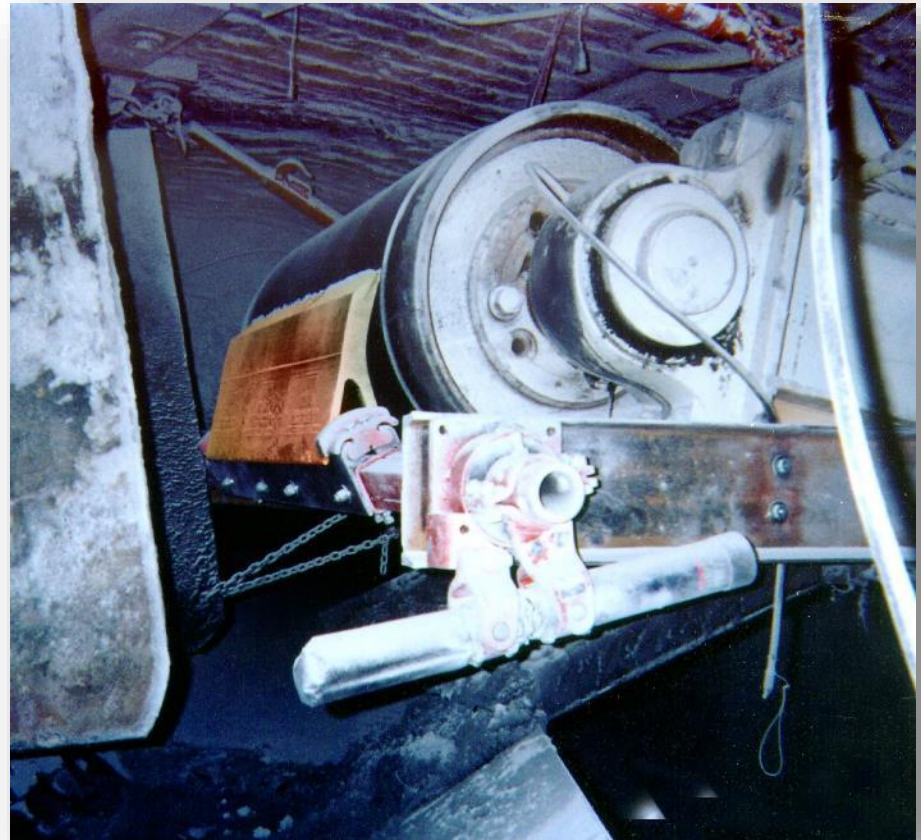
- Provides End Users an objective scientific method to determine a cleaner's suitability for application.
- Allows End Users to specify a cleaner that meets application needs.
- Allows End Users to check sales rep recommendation vs. application requirements.
- Allows End Users to compare "apples to apples" (in pricing, duty rating, performance, manufacturer's guarantee, etc.)



Benefits for Conveyor Engineers



- Allows Conveyor Engineers to specify a cleaner rating without relying on competing manufacturer's proprietary (or suspect) technical information.
- Provides Conveyor Engineers an objective method to determine a cleaner's suitability for application.



Benefits for Manufacturers



- Provides Cleaner Manufacturers an objective method to assess cleaner application.
- Provides Cleaner Manufacturers a method to allow customers to compare cleaner offerings.
- Allows Cleaner Manufacturers to make sure cleaner matches application (and so assure customer satisfaction).



Overview of CEMA 576 Ratings

Uses application characteristics to develop a rating

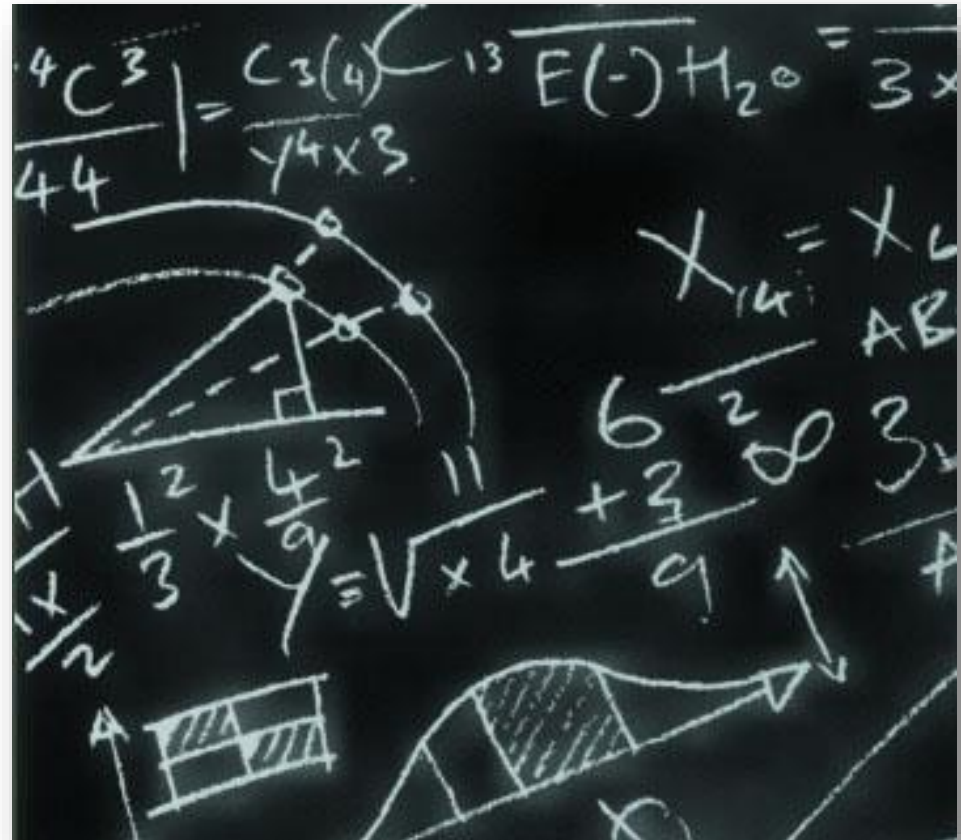
Belt Characteristics

- ☐ Belt Width
- ☐ Belt Speed
- ☐ Belt Splices

Material Characteristics

- ☐ Abrasiveness
- ☐ Stickiness/Moisture Content

Each factor is scored individually, and all scores then totaled, to provide the rating (“Class”) used to guide cleaner selection.



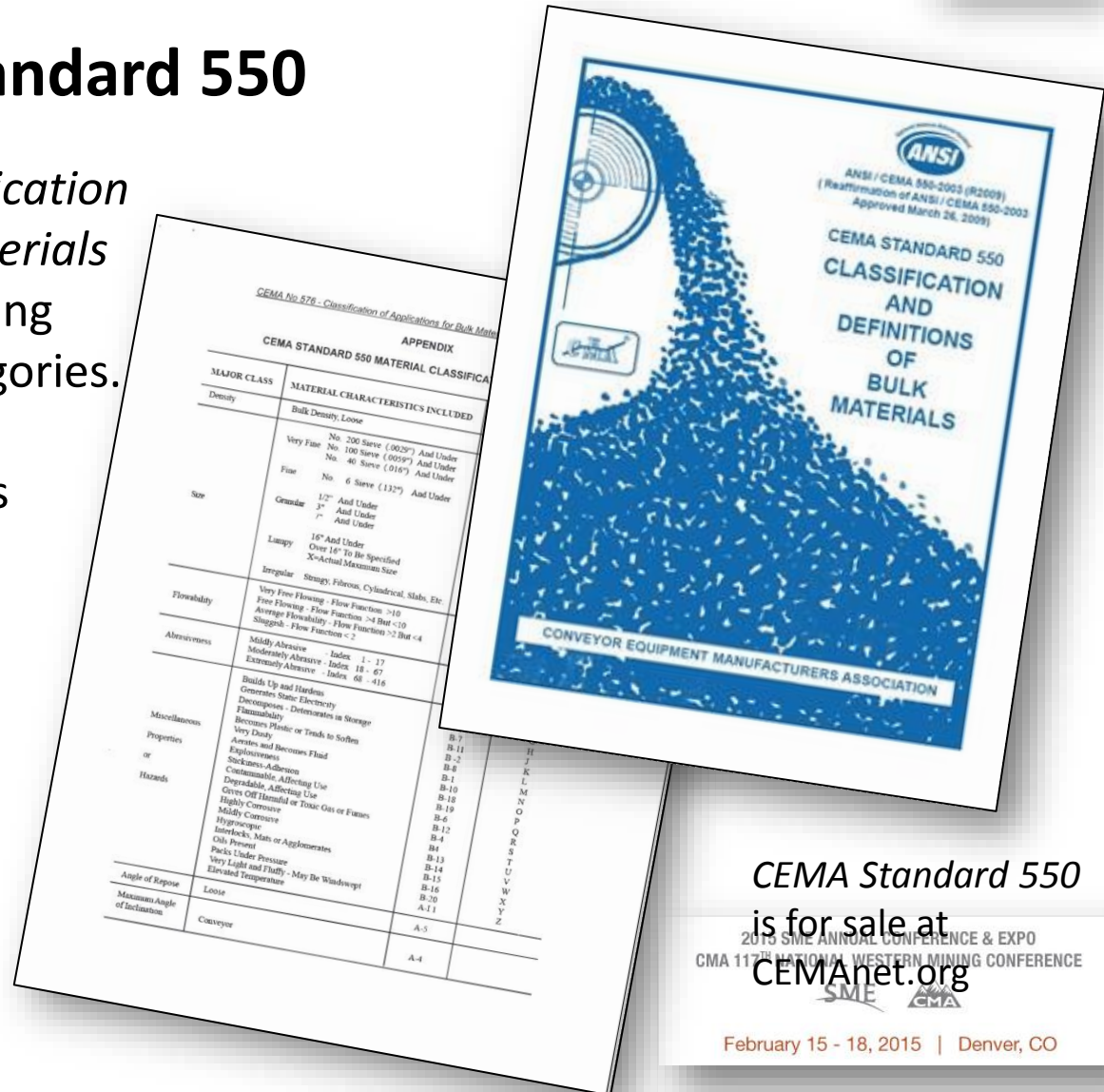
Material characteristics



Based on CEMA Standard 550

CEMA Standard 550 Classification and Definitions of Bulk Materials is a valuable tool for assigning values to the material categories.

Reputable cleaner suppliers and engineering firms should have the material tables in this Standard available for you.



CEMA Standard 550

is for sale at
CEMA.net.org

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Belt Characteristic #1

Belt Width

Belt Width		
Imperial	Metric	Score
Less than 24 in.	< 610 mm	0
24 to 42 in.	610 to 1067 mm	1
42 to 60 in.	1068 to 1524 mm	2
60 to 96 in.	1525 to 2438 mm	4
More than 96 in.	> 2438 mm	8

For the purpose of the rating, conveyor belts must be new or in “as new” condition.



Belt Characteristic #2



Belt Speed

Belt Speed

Imperial	Metric	Score
Less than 300 fpm	< 1.5 m/s	1
300 to 600 fpm	1.5 to 3.0 m/s	2
601 to 1000 fpm	3.1 to 5.0 m/s	4
More than 1000 fpm	> 5.0 m/s	8

For the purpose of the rating, conveyor belts must be new or in “as new” condition.



Belt Characteristic #3

Type of Splice

Belt Splices	
	Score
Vulcanized splices for entire life of belt	0
Mechanical splices with belt speed less than or equal to 500 fpm (2.5 m/s)	2
Mechanical splices with belt speed greater than 500 fpm (2.5 m/s)	4

For the purpose of the rating, conveyor belts must be new or in “as new” condition.



Material characteristics #1

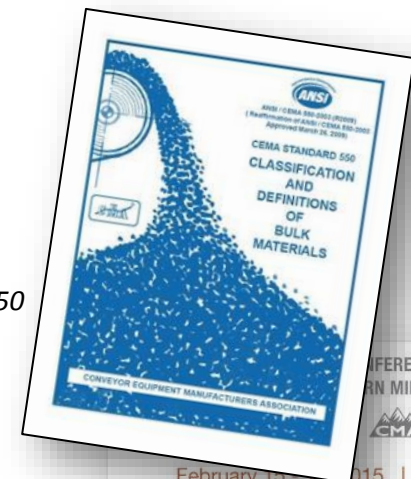


Material Abrasiveness

Abrasiveness	SCORE
Mild (CEMA Standard 550 code 5, Abrasive index 1-17)	1
Medium (CEMA Standard 550 code 6, Abrasive index 18-67)	2
Severe (CEMA Standard 550 code 7, Abrasive index 68-416)	3

In situations where material conditions will vary, choose the worst case expected conditions.

CEMA Standard 550
is for sale at
CEMANet.org.





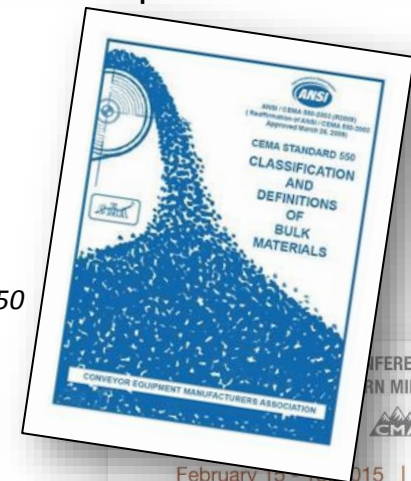
Material characteristics #2

Stickiness and/or Moisture Content

Stickiness/Moisture Content	SCORE
Mild/Dry (Less than 2% moisture by weight)	1
Medium/Moist (2-8% moisture by weight)	2
Heavy/Wet (More than 8% moisture by weight)	4
Severe/Wet Slurry with Fines (CEMA 550 Code F, O, V)	8

In situations where material conditions will vary, choose the worst case expected conditions.

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Total score

The final application score is the sum of all five factors.

“Duty Rating (or class of the cleaners is then assigned as follows:

CEMA 576 Application Ratings	
Total Score	Cleaner Rating
6 or Less	Class 1
7 - 10	Class 2
11 - 15	Class 3
16 - 23	Class 4
24 or More	Class 5

In picking a cleaner, you should get one rated AT LEAST as high as the “class” rating for your specific application. Go higher; do not go lower.

Let's try one...



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What CEMA 576 Does NOT tell you



- The degree of cleanliness resulting from a properly specified, installed and maintained belt cleaner or multiple belt cleaner system is not covered by CEMA 576. It is the end user's responsibility to define the desired level of cleaning that is required for their application.
- CEMA 576 makes no allowances for belt or splice condition or problems in belt tracking or changes in material condition. For application class ranking, CEMA 576 considers the conveyor belt to be in “new” or “as new” condition.
- CEMA 576 makes no statement regarding the cleaning performance or life of any particular conveyor belt cleaner. For information, contact a belt cleaner manufacturer who is a member of CEMA.

What else to consider



To improve cleaning selection and performance

- One cleaner may not be enough; two cleaners may not be enough.
- No cleaner works well if improperly installed.
- Proper maintenance is critical.
(adjustment of tension, cleaning of the cleaner, blade change, etc.)
- Be wary of changes in application characteristics.
(material tonnage, moisture content, belt speed, etc.)
- Ask for and check references to verify performance on belt cleaning systems installed in similar industries and conditions.



Who has the first question?



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THANK YOU!

Let's Clean Up Application Ratings and What They Mean to You



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