The Andur Report

May 2019

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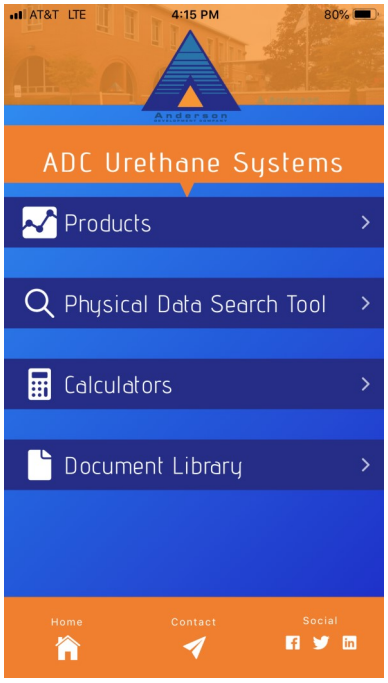
Anderson Development Company

Anderson Development Mobile App!

Anderson Development Company has released a new, completely free mobile app. The app, titled as "ADC Urethane Systems", contains technical datasheets and safety datasheets for all of



ADC's polyurethane products, making it quick and easy to find product information on any ADC product, whether you are in the office, on the shop floor, or on the go. Other features the app has are a physical data search tool, calculators for common urethane operations, and a document library.

The data search tool allows the user to find a urethane system based on input from the user. The isocyanate, hardness, backbone (PPG, PTMEG, polyester, etc.), and curative can be selected to filter down to exactly what you need. Each system also has physical properties and attributes listed.

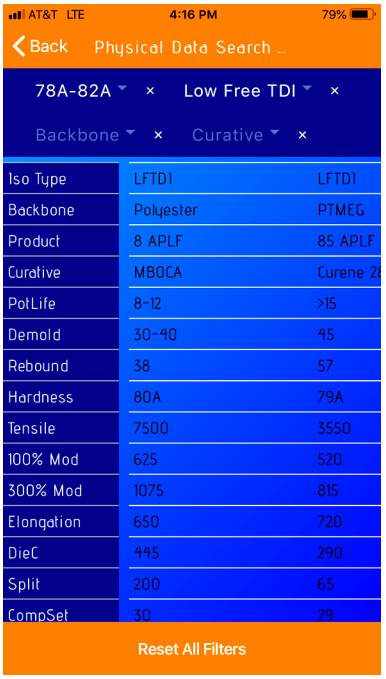
The calculators on the app are very helpful for calculating ratios of materials, based on prepolymer weight or total pour weight. They are quick and easy to use, making them a good asset for not only production planning, but also the employees on the floor casting parts.

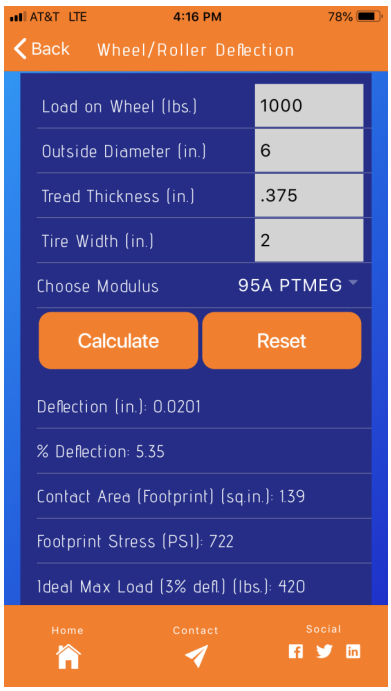
There is also a wheel deflection calculator that estimates the percent deflection and maximum recommended load of a wheel or tire given its dimensions and hardness.

The document library on the app contains a myriad of information including brittleness temperatures, coefficient of friction data, flexural modulus, and a supplier list to name a few.

At last, an app that puts polyurethane resources in the palm of your hand!

Download today on iOS or Android!





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OSHA Updates (from PMA Polytopics, Quarter 1, 2019)

OSHA HAZCOM

OSHA is updating its Hazard Communication standard to align with the most current Globally Harmonized System (GHS) for Classification and Labeling of Chemicals. The safety agency's 2012 HazCom standard is based on the 3rd edition of the GHS. OSHA will update to the current 7th edition of GHS that the rest of the world is using now.

OSHA Inspections Are Changing

In 2019 there will be several changes in how OSHA inspects facilities:

Drones: In May 2018, OSHA was authorized to use drones in workplace inspections especially in areas where it is deemed as a possible safety risk or inaccessible. Keep in mind, OSHA inspectors MUST obtain permission from the employer in order to do so.

Fines: Due to inflation, OSHA has increased the maximum civil penalties for safety violations. The mandatory annual penalty increases are required by the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015 (ACT) and apply to Federal OSHA states.

More surprise targeted inspections: Inspections of non-construction workplaces with more than twenty employees who failed to provide 2016 Form 300A data significantly increased. OSHA will be selecting employers that fit that criteria and adding them to an inspection list combined with employers who reported high "days away, restricted or transfer" rates in 2016 and some employers from the low DART rates. This is all part of their Site Specific Targeting 2016 inspection plan. There are also nine National Emphasis Programs that focus on specific inspections including: Process safety management, Hazardous machinery, Hexavalent chromium, and combustible dust in place

The OSHA General Duty Clause

Covering all hazardous conditions, Section 5(a)(1) of the Occupational Safety and Health Act states: "Each employer shall furnish to each of its employees a place of employment which is free from recognized hazards that are causing or likely to cause death or serious physical harm."

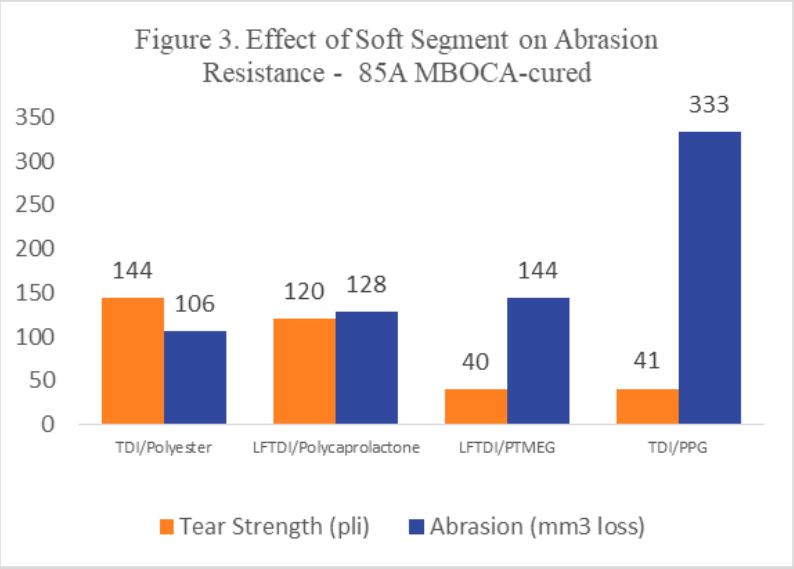
An example where the General Duty Clause applies are the musculoskeletal disorders resulting from ergonomic issues. Other examples include workplace violence and indoor air quality. Many workers have become seriously ill or died from such hazards, yet there are no specific OSHA standards applicable to these situations.

In order to site the General Duty Clause, 4 conditions must be met:

- There must be a hazard
- The hazard must be recognized (meaning the employer must know about it, it's an obvious hazard, or its a recognized hazard within the industry)
- The hazard causes or is likely to cause serious harm or death
- The hazard must be correctable

Improving Abrasion Resistance—Technical Paper

At the 2019 PMA conference, ADC presented a technical paper titled, "Effective Additives for Improving Abrasion Resistance in Polyurethane Elastomers ". In the paper several avenues to improving abrasion resistance are discussed along with the evaluation of several abrasion resistant additives. To the right is a graph showing the effect of soft segment type. Polyester is the most effective, while a PTMEG has a 36% decrease in abrasion resistance. Even more inferior is a PPG, which can easily be seen as the volume loss is three times any other material. Many other effects are discussed in the paper as well, including the effect of stoichiometry, hard-segment composition, and curative.



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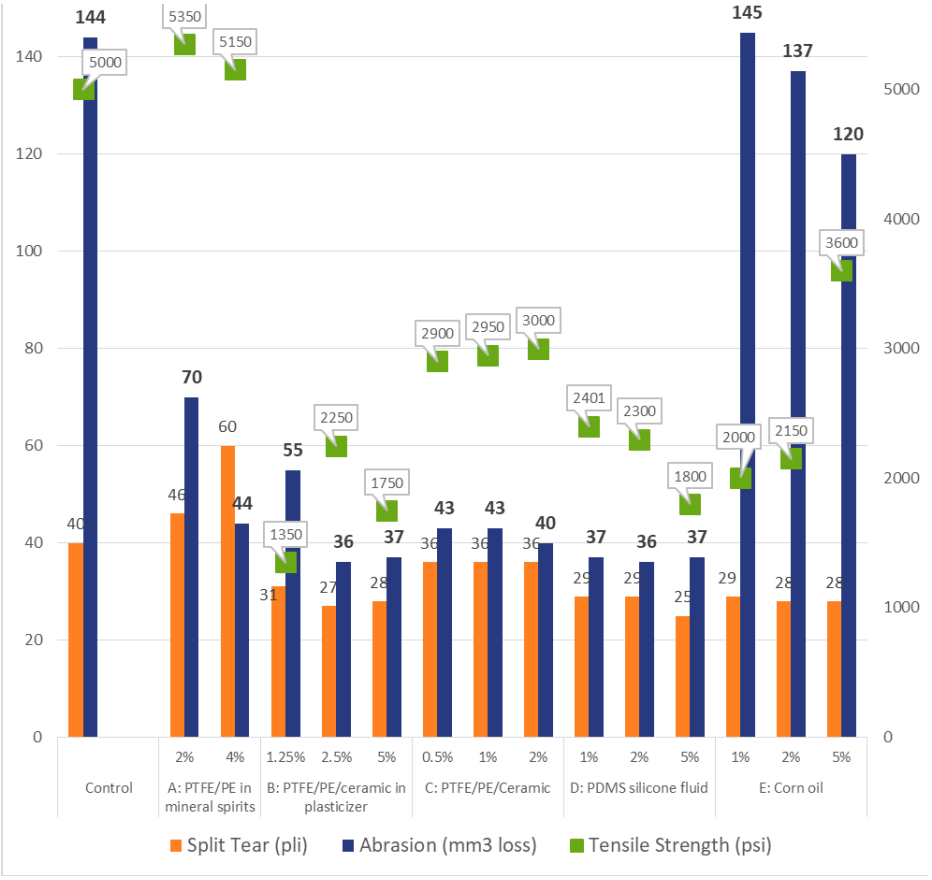
Abrasion Resistance, cont'd

Five additives were also evaluated. The effects of these additives on an 85A LFTDI-PTMEG can be seen to the right. All the additives improve the abrasion resistance (blue bars) very well, with volume loss values that are even better than a polyester elastomer without any additives. The material that has the best physical property retention is additive A, which is also known as AndurGlide 4830. The other additives improve the abrasion resistance as well, but do not retain the tensile and tear strength as well as the AndurGlide 4830. See the complete technical paper for many more details.



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Mission Statement

Anderson Development will be a global supplier of innovative specialty chemical products, striving for continual improvement in all of our operations. It is our goal to be personal, efficient, and responsive to our customers and employees. We will provide a team-oriented atmosphere while allowing for individual diversity among our employees.

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