

# What's the skinny on the skin?

*We are building a new high school baseball field and want to use the right kind of dirt for the infield skin. Our existing field was native soil that had been conditioned over the years with calcined clay to make a pretty good mix. When the moisture is just right it played great but we are prone to rainouts since we don't have infield rain covers. Is there any standard for making the baseball infield dirt?*

**I** love this question simply because it allows me to use the word dirt. My soil fertility professor once scolded me for using the term dirt rather than soil and ever since then it has stuck in my throat like a red dusty Georgia clay. Dirt he said was what you swept under the rug and soil is what grows the bounty of the world. He was of course correct. But the soil we use for skin infields is certainly not chosen for its growing ability. Some of the best agronomic loamy soils that are high in organic matter often absorb and hold too much water causing excessively wet playing conditions.

A few years ago the answer would have been, there simply are no standards for skin infields. Fortunately, turf and soil scientists have been working with industry personnel to produce an American Society for Testing Materials standard ASTM F2107-01 "Standard Guide for Construction and Maintenance of Skinned Areas on Sports Fields. [www.astm.org](http://www.astm.org). The ASTM standard offers guidelines for terminology, construction, materials, and maintenance of skinned field areas including mounds and batting areas. This standard guide is intended to provide flexibility in choices of procedures that can be used to cover a variety of use and budget levels. For example, high-end fields may have a layered system of trenched drain lines on 30-ft centers and a 4-in. gravel blanket. That is covered by 4-8 in. of sand topped with another 4 in. of the surface ball field mix of your choice. It also gives some lower-end guidelines such as, "in the absence of particle size data to assess materials, a reasonable approach would be to prepare a mixture using 15 to 30% clayey soil and 70 to 85% sand or combinations of sand and properly sized amendments."

One good thing about having a standard is that it forces field contractors, managers, architects, and others to test the existing materials on the field as well as the materials that may be added to the field. Recommendations can't begin to meet expectations until we know something about the materials we are working with. There are many different materials being used for infields depending on your location. Sand, silt, and clay are the materials most common to all skin areas. You should consult ASTM F2107 for the allowable limits for specific sizes of sand, silt, and clay. In general the specification has 6-20% silt+clay and 80 to 95% sand of various sizes.

Since you are prone to rainouts you will want to use the specification that suggests 6-10% silt+clay in rainy climates. Another suggested specification is for 11-20% silt+clay with the understanding that it will drain more slowly and retain more water. More silt+clay makes the field stiffer or harder as it dries. During construction or later renovation soil conditioners may be added to fine-tune the skin's performance. Products that are typically used include calcined clay, vitrified clay, calcined diatomite, expanded shale, polymer coated sand,

clay, and sand. Crushed rock, bark chips, Ag-lime, and organic binders have also been used as local materials to amend existing skins or to serve as the pre-dominant material for construction or renovation.

There are many manufactured ball field mixes that may or may not fit these standards. Suppliers, sports turf managers, and coaches have developed different commercial mixes from their experience with local materials. Whenever possible consider using a processed and consistent ball field mix. As a starting point have a particle size test done on the field. Develop a strategy to amend the existing material or replace it. Don't be too quick to discard a skin that you have been amending for several years, it may be excavated and blended with other materials for later use. If you have been encouraged to make changes then ask your coaches which field do they play on that has the best infield skin. Contact that sports turf manager and get the skinny on their skin material. Sometimes you need to change materials and sometimes you need to change management.

There was very little technical information published about ball field skin mixtures until ASTM F2107. Like all standards there will be additions and changes as more information becomes available. A fitting end to this article comes from the note at the beginning of the maintenance section of ASTM F2107: "It has often been observed that the skills of the grounds manager are a greater contributing factor to high quality skinned areas than the materials used to construct these areas. Successful managers must select management practices that are appropriate for the field at hand, or modify field conditions to match a given maintenance program." In essence, there is still a degree of art involved that calls for a master's touch of the skin. Unfortunately in this arena the mud-dried hands of a sports turf manager cracks an awkward smile only when no one critically notices the field. Somehow that needs to change.

**Special offer:** We are trying to improve skin infield recommendations by relating particle size and field performance in a database. Go to <http://turf-grass.hort.iastate.edu/extension/infield.pdf> to receive a free particle size analysis of your skin infield. Send your skin infield sample along with the completed survey to get your free particle size analysis. Nick Gow, a 2003 SAFE Undergraduate Scholarship winner will be conducting the soil tests at Iowa State.

Thanks to AMcNitt Company (814-364-2792) and Hummel & Co. Inc <http://www.Turfdoctor.com> for their assistance related to soil testing for this column.

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## Have Questions?

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