

# Colloidal Oatmeal Cheat Sheet

## INGREDIENT NAME

- > Colloidal oatmeal, 0.007 percent minimum; 0.003 percent minimum in combination with mineral oil.

## COMPOSITION AND BENEFITS

- > The main components of colloidal oatmeal are 65-85% polysaccharides (including beta glucans), 15-20% proteins, 3-11% lipids, saponins, vitamins (including vitamin E), minerals, antioxidants (including avenanthramides), and other protective compounds.<sup>1</sup>
  - > Beta Glucans: Polysaccharide constituents with potent hygroscopic (water holding) qualities
  - > Avenanthramides & other Polyphenols: Avenanthramides, the main polyphenolic antioxidants in colloidal oatmeal, demonstrate greater antioxidant activity than that of other oat phenolic compounds such as vanillin or caffeic acid<sup>2,3</sup>
  - > Oat Lipids: Fractionated oat oil is ~80% unsaturated fatty acids (42-52% linoleic acid, 27-32% oleic acid, and 17-21% palmitic acid), helps restore the skin moisture barrier and has shown pro-ceramide activity in-vitro<sup>4</sup>
  - > Proteins: Skin pH buffering, water-binding and barrier enhancing hydrophilic amino acids
  - > Vitamin E: Naturally occurring antioxidant that helps protect against oxidative stress, inflammation and photo-induced aging<sup>5</sup>

## MECHANISM OF ACTION

- > Colloidal oatmeal has various mechanisms of action including direct anti-inflammatory, anti-pruritic, antioxidant, pre-biotic and moisture barrier repair properties, and beneficial effects on skin pH.
  - > Moisture Barrier: In vitro data showed oat extracts increase transcription of skin barrier and differentiation genes which may aid in the treatment of inflammatory skin conditions.<sup>5</sup> The occlusive and water-binding colloidal oatmeal film holds moisture in the stratum corneum, helping to replenish the barrier.<sup>2,3</sup> In vitro data showed oat lipids induce ceramide formation in skin cells.<sup>2,3</sup>
  - > pH Modulation: Colloidal oatmeal has been shown to have immediate and sustained pH buffering action to counteract elevated skin pH.<sup>6,7</sup>
  - > Anti-pruritic: Avenanthramides, in colloidal oatmeal, have been shown in vitro to inhibit neurogenic inflammation, helping to break the itch-scratch cycle.<sup>8</sup>
  - > Anti-inflammatory: Colloidal oatmeal extracts reduce the release of cytokines from human keratinocytes.<sup>9,10</sup> Avenanthramides inhibit IL-1B induced NF-kB activation in endothelial cells; suppress IL-1B secretion of pro-inflammatory cytokines such as IL-6, IL-8 and MCP-1.<sup>11</sup>
  - > Antioxidant: Avenanthramides, in colloidal oatmeal, function as antioxidants inhibiting lipoxygenase-activated fatty acid oxidation and nonenzymatic oxidation.<sup>3,12</sup>
  - > Pre-biotic: Oat flour supports the growth of commensal microorganisms, such as *S. epidermidis* to help balance the skin's microbiome.<sup>13</sup>

## FDA MONOGRAPH SKIN PROTECTANT PRODUCT

- > A drug product that temporarily protects injured or exposed skin or mucous membrane surfaces from harmful or annoying stimuli, and may help provide relief to such surfaces.
- > Colloidal Oatmeal, that meets the strict quality requirements as determined by US pharmacopeia and National Formulary, is an active ingredient in the US OTC skin protectant monograph.<sup>15</sup>
- > Colloidal oatmeal is the only single skin protectant OTC active ingredient that can claim to temporarily protect and help relieve symptoms of eczema as recognized by the US FDA & Health Canada OTC Monographs.<sup>14,16</sup>

## INDICATIONS

- > Temporarily protects and helps relieve minor skin irritation and itching due to:
  - > Rashes
  - > Eczema
  - > Poison ivy, oak, or sumac
  - > Insect bites

## CLINICAL OUTCOMES

- > Oat is one of the most studied natural ingredients in skincare, with extensive in vitro and in vivo data across diverse adult and pediatric patient populations and clinical applications.
- > Colloidal oatmeal containing formulas have been proven to reduce itch severity and improve quality of life in eczema patients, delivering significant improvements in sleep quality, social activity and daily functioning.<sup>17-19</sup>
- > Colloidal oatmeal containing formulas have been shown to improve symptoms of eczema as early as 1 day with increasing improvements over time.<sup>17</sup>
- > A 1% colloidal oatmeal containing emollient has been shown to be as effective at improving the signs and symptoms of eczema as a prescription barrier cream.<sup>20,21</sup>
- > In a 2-year retrospective study of over 54,000 patients with chronic dry skin and eczema, use of a colloidal oatmeal containing emollient showed a significant reduction in prescriptions written for steroids and antimicrobials.<sup>22</sup>
- > A colloidal oatmeal containing lotion has been shown to deliver significantly greater improvements versus its own vehicle in relieving the intensity, duration and frequency of itchy, dry skin.<sup>23</sup>
- > A colloidal oatmeal containing lotion delivered significant and sustained improvements in dryness and roughness in diabetic dry skin patients.<sup>24</sup>
- > A colloidal oatmeal containing lotion significantly improved dryness roughness, desquamation, discomfort, itching and the appearance of redness associated with mild psoriasis.<sup>25</sup>
- > Colloidal Oatmeal containing formulas have been shown to significantly improve dermatologic side effects of oncology treatments in patients on systemic therapies.<sup>26</sup>
- > A colloidal oatmeal containing lotion effectively controlled rash associated with epidermal growth factor receptor EGFRIs and multiple tyrosine kinase inhibitors in 100% of participants allowing for the continuation of antineoplastic therapy.<sup>27</sup>
- > A colloidal oatmeal containing emollient shown to be an effective skincare approach in radiotherapy.<sup>28</sup>

## HOW TO USE

- > Apply as needed.

## STORAGE

- > Store at room temperature.

## WARNINGS

- > For external use only. See labeling for product specific warnings.