**Clinical Applications**

- Supports Biochemical Reactions Requiring Methyl Groups*
- Supports Neurotransmitter Synthesis and Healthy Mood*
- Facilitates Conversion of Homocysteine to Glutathione*
- Supports Liver Health and Function*
- Promotes Joint Comfort*

**SAMe & TMG** is a sweet, yet slightly tart lemon-flavored powder. **SAM-e** is encapsulated SAMe. **SAM-e** (S-adenosyl-L-methionine) and **TMG** (trimethylglycine) are naturally occurring substances that act as methyl donors during vital biochemical processes in the body. Methylation is essential to normal cell health and function. It can decline with age or chronic alcohol consumption, and it can be limited in some individuals due to their genetic makeup. **SAMe** is the “universal” methyl donor for biochemical reactions throughout the body. This methyl transfer, or “transmethylation,” is critical to reactions involving proteins, phospholipids, DNA, RNA, creatine, hormones, development of cell membranes, degradation of histamine, and formation of norepinephrine and dopamine. Eighty-five percent of transmethylation takes place in the liver, and healthy SAMe levels appear to be essential to liver health and function.*

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**Antioxidant and Liver Support** **SAMe** is considered to be “critical” for synthesis of glutathione, a principal component of antioxidant and detoxification systems in the body. Following donation of a methyl group, **SAMe** is converted to S-adenosyl-homocysteine (SAH). This biochemical reaction promotes the transsulfuration pathway in the liver that generates glutathione. Further metabolism of SAH involves trimethylglycine (TMG), also known as betaine anhydrous. TMG plays an important role in maintaining a healthy SAMe:SAH ratio in the liver.*

During a national symposium, the roles of **SAMe** and **TMG** in supporting liver health were reviewed with a focus on their participation in the vital processes of transmethylation and transsulfuration, their ultimate contribution to increased glutathione synthesis and its hepatoprotective effects, their promotion of a balanced SAMe:SAH ratio, their activation of phosphatidylethanolamine methyltransferase, and the increase in phosphatidylcholine synthesis as a result of their administration.*

Ongoing animal studies suggest that **SAMe** supports liver health and that exogenous **SAMe** may positively affect cell-life regulation of hepatocytes. In certain human cohorts, researchers recommend further research into combining **SAMe** with nutrients such as vitamin B6 to optimize outcomes.*

**Healthy Mood** Supplemental **SAMe** appears to support a healthy mood, possibly due to its active role in methylation and its involvement in the formation of monoamine neurotransmitters.*

**Meta-analysis** of earlier studies suggested that **SAMe** showed greater support of a healthy mood when compared to placebo with an effect comparable to that of other treatments.* A 30-day, double-blind, placebo-controlled, randomized study of 80 women suggested that there was a significant improvement in mood after the women received an oral dose of 1600 mg/d of **SAMe** compared to placebo.*

Another study of 143 subjects who received an oral dose of 1600 mg/d of **SAMe** suggested that **SAMe** yielded positive results that were comparable to other treatments for supporting a healthy mood, but **SAMe** was better tolerated.* In a small (N=26), four-week, double-blind, randomized protocol comparing oral **SAMe** with other treatments, 62% of the **SAMe** group showed significant improvement in mood. The **SAMe** group showed greater support of a healthy mood than other treatments, 62% of the **SAMe** group showed significant improvement in mood. The study revealed a significant correlation between plasma **SAMe** levels and the degree of healthy mood support, regardless of treatment type.*

**TMG** Trimethylglycine is a naturally occurring compound (glycine attached to three methyl groups) that is found in food (estimated intake 0.5-2 g/d) and can be produced in the body from the precursor choline.* **TMG** is thought to protect liver cells, support homocysteine metabolism and cardiovascular health, and may also support a healthy mood due to its role in **SAMe** metabolism.* When **TMG** donates a single methyl group, it is converted to dimethylglycine (DMG), which is capable of donating two methyl groups. **TMG** is thought to stimulate activity of the enzyme betaine-homocysteine methyltransferase (BHMT). BHMT, found in abundance in the liver, is used by **TMG** to donate a methyl group to homocysteine. Once **TMG** adds a methyl group to homocysteine to produce methionine, the methionine can then be converted to **SAMe**. A randomized, double-blind, crossover study of healthy volunteers suggested that **TMG** supplementation (at doses of 3 g and 6 g/d) has a dose-dependent effect on serum **TMG** levels and a significantly positive effect on maintaining healthy homocysteine levels.*

Together, **SAMe** and **TMG** provide an abundant source of methyl groups and ultimately support a wide variety of biochemical reactions in the body.*

**SUMMARY** **XYMOGEN**’s **SAM-e** contains a minimum of 70% of the SS isomer of **SAMe**, the form the body can use most readily. This relatively high concentration from Gnosis’® Adomix® not only makes **SAM-e** particularly bioavailable but also cost-effective. Each capsule is sealed in a nitrogen-purged blister pack to maximize protection from the environment.*

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Liver Support
Take one capsule daily, or as directed by your healthcare practitioner. Preferably pour a small amount of the contents of a stick pack directly into the mouth and allow contents to dissolve. Then repeat process until contents of the entire stick pack have dissolved in the mouth. Alternatively, contents may be added to 2-4 oz of water or preferred liquid; stir and drink within 15 minutes.

Consult your healthcare practitioner prior to use. Individuals taking medication should discuss potential interactions with their healthcare practitioner. Use special caution in individuals with bipolar disorder. Do not use if tamper seal is damaged.

STORAGE: Keep closed in a cool, dry place out of reach of children.

Does NOT Contain: Wheat, gluten, corn, yeast, soy, animal or dairy products, fish, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, or artificial preservatives.

SAMe & TMG Supplement Facts
Serving Size: 1 Stick Pack (about 2.6 g)

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Amount Per Serving</th>
<th>% Daily Value</th>
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</thead>
<tbody>
<tr>
<td>Betaine (trimethylglycine)</td>
<td>600 mg</td>
<td>**</td>
</tr>
<tr>
<td>S-adenosyl-L-methionine</td>
<td>200 mg</td>
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Other Ingredients: Xylitol, calcium carbonate, citric acid, malic acid, stearic acid, calcium chloride, calcium oxide, silica, natural lemon flavor, and turmeric extract (for color).

DIRECTIONS: Consume one stick pack daily away from meals, or as directed by your healthcare practitioner. Use special caution in individuals with bipolar disorder. Do not use if tamper seal is damaged.

STORAGE: Keep closed in a cool, dry place out of reach of children.

Does NOT Contain: Wheat, gluten, corn, yeast, soy, animal or dairy products, fish, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, or artificial preservatives.

SAM-e Supplement Facts
Serving Size: 1 capsule

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<tr>
<td>S-adenosyl-L-methionine</td>
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</tbody>
</table>

Other Ingredients: HPMC (capsule), microcrystalline cellulose, ascorbyl palmiate, calcium oxide, silica, and calcium chloride anhydrous.

DIRECTIONS: Take one capsule daily, or as directed by your healthcare practitioner.

Consult your healthcare practitioner prior to use. Individuals taking medication should discuss potential interactions with their healthcare practitioner. Use special caution in individuals with bipolar disorder. Do not use if foil is punctured.

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Does NOT Contain: Wheat, gluten, corn, yeast, soy, animal or dairy products, fish, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, or artificial preservatives.

References

Additional references available upon request.