

Summary Report

Precipitated Sulfur

Prepared for:

Food and Drug Administration

Clinical use of bulk drug substances nominated for inclusion on the 503B Bulks List

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REVIEW OF NOMINATIONS

Precipitated sulfur (UNII code: 70FD1KFU70) was nominated for inclusion on the 503B Bulks List by Sincerus Florida, LLC and the Outsourcing Facilities Association (OFA). While the exact medical condition in which the compounded product is intended to treat is generally unknown, precipitated sulfur is generally used to treat acne and seborrheic psoriasis. Precipitated sulfur will be compounded in various topical dosage forms and strengths based on the prescriber's request; the therapeutic dose ranges from 2-9%. Additionally, precipitated sulfur will be compounded as a 2-9% topical gel, cream, body wash, and lotion in combination with other active pharmaceutical ingredients (API) for treatment of acne and seborrheic psoriasis, refer to Table 7 for specific nominated combination formulations.

Reasons provided for nomination to the 503B Bulks List include:

- There are no FDA-approved drugs containing precipitated sulfur.
- Sulfur will be compounded in combination with other APIs. Commercially available products would not be able to achieve the appropriate strength when prepared with other APIs and the necessary excipients.
- As with any drug product patients respond differently and the compounded product may be the only formulation to effectively treat the indication for which it is intended to treat.
- Compounding from bulk allows using only the necessary ingredients to achieve the desired clinical outcome. The API will be without any fillers, excipients, fillers, binders, dyes, preservatives, or other materials ensuring that no irritating, hazardous or allergenic ingredients are included.
- Individual finished products have considerable variance in the actual API that may introduce unacceptable inaccuracies into the compounded product.

METHODOLOGY

Background information

The national medicine registers of 13 countries and regions were searched to establish the availability of precipitated sulfur products in the United States (US) and around the world. The World Health Organization, the European Medicines Agency (EMA), and globalEDGE were used to identify regulatory agencies in non-US countries. The medicine registers of non-US regulatory agencies were selected for inclusion if they met the following criteria: freely accessible; able to search and retrieve results in English language; and desired information, specifically, product trade name, active ingredient, strength, form, route of administration (ROA), and approval status, provided in a useable format. Based on these criteria, the medicine registers of 13 countries/regions were searched: US, Canada, European Union (EU), United Kingdom (UK), Ireland, Belgium, Latvia, Australia, New Zealand, Saudi Arabia, Abu Dhabi, Hong Kong, and Namibia. Both the EMA and the national registers of select EU countries (Ireland, UK, Belgium, and Latvia) were searched because some medicines were authorized for use in the EU and not available in a member country and vice versa.

Each medicine register was searched for precipitated sulfur; name variations of precipitated sulfur were entered if the initial search retrieved no results. The following information from the search results of each register was recorded in a spreadsheet: product trade name; active ingredient; strength; form; ROA; status and/or schedule; approval date. Information was recorded only for products with strengths, forms and/or ROA similar to those requested in the nominations.

In addition to the aforementioned medicine registers, the DrugBank database (version 5.1.4) and the Natural Medicines database were searched for availability of over-the-counter (OTC) products containing precipitated sulfur. The availability of OTC products (yes/no) in the US and the ROA of these products were recorded in a spreadsheet. Individual product information was not recorded.

Systematic literature review

Search strategy

Two databases (PubMed and Embase) were searched including any date through June 10, 2019. The search included a combination of ("precipitated sulfur"[TIAB] OR sulfur[TIAB]) AND (topical OR gel OR cream OR lotion OR ointment OR solution OR suspension OR niacinamide[TIAB] OR "sodium sulfacetamide"[TIAB] OR "salicylic acid"[TIAB]) AND (treat*[TIAB] OR therap*[TIAB] OR clinic*[TIAB] OR acne[TIAB]) AND (humans[MeSH Terms] AND English[lang]) NOT autism NOT (review[ptyp] OR meta-analysis[ptyp] OR systematic[sb]). Peer-reviewed articles as well as grey literature were included in the search. Search results from each database were exported to Covidence®, merged, and sorted for removal of duplicate citations.

Study selection

Literature reviews and/or meta-analyses, cost-effectiveness, and epidemiological studies were excluded. Precipitated sulfur is available as an OTC product; as a result, articles were excluded if precipitated sulfur was utilized as the OTC product. Additional exclusion criteria includes any dosage form/ROA that differed from the nominated dosage form/ROA. Articles were considered relevant based on the identification of a clinical use of precipitated sulfur or the implementation of precipitated sulfur in clinical practice. Articles were excluded if not in English, a clinical use was not identified, incorrect salt form, or if the study was not conducted in humans. Screening of all titles, abstracts, and full-text were conducted independently by two reviewers. All screening disagreements were reconciled by a third reviewer.

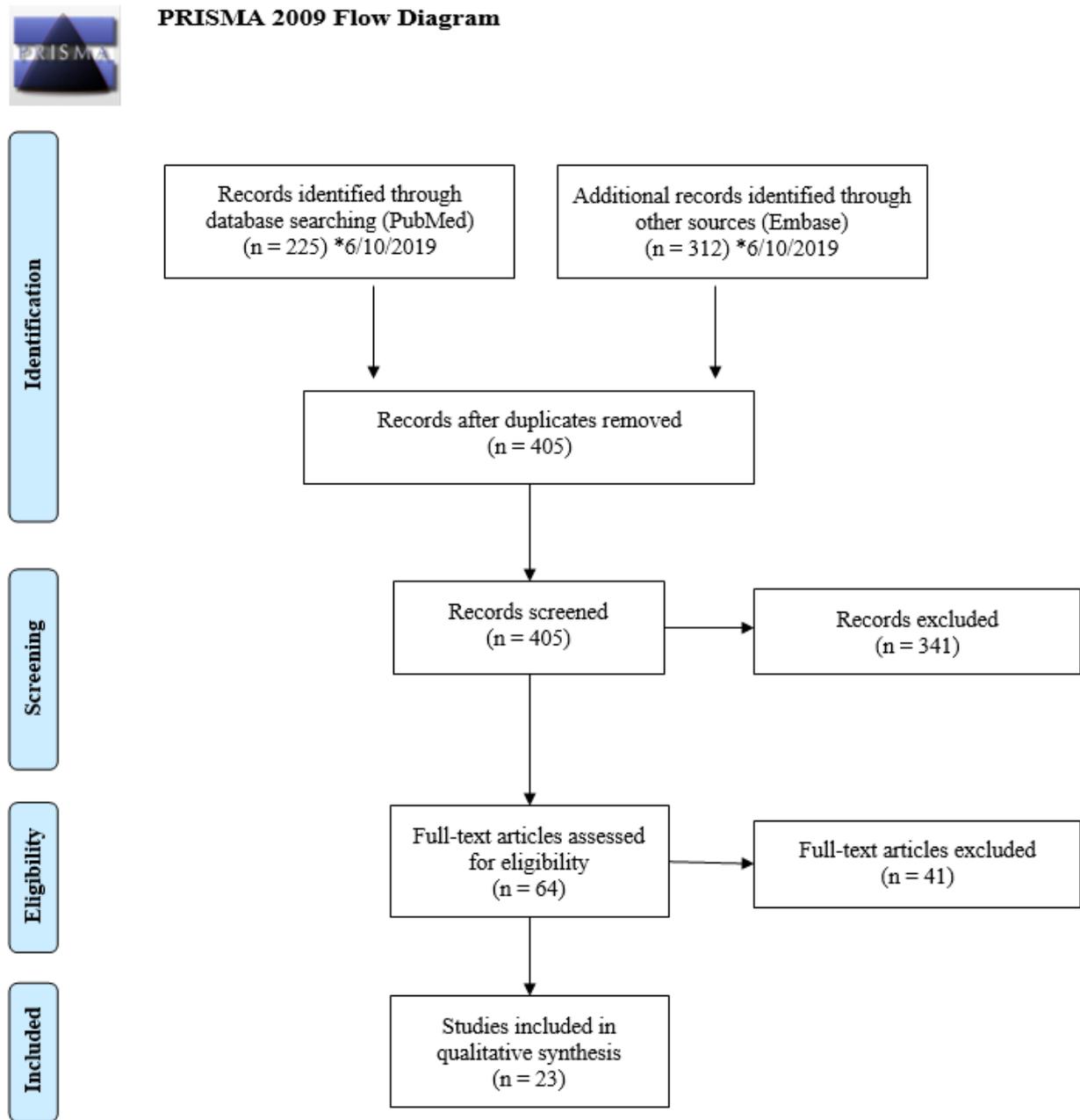
Data extraction

A standard data extraction form was used to collect study authors; article title; year published; journal title; country; indication for precipitated sulfur use; dose; strength; dosage form; ROA; frequency and duration of therapy; any combination therapy utilized; if applicable, formulation of compounded products; study design; and any discussion surrounding the use of precipitated sulfur compared to alternative therapies.

Results

Please refer to Figure 1.

Figure 1. Summary of literature screening and selection (PRISMA 2009 Flow Diagram)



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit www.prisma-statement.org.

Outreach to medical specialists and specialty organizations

Using the indications from the nominations and the results of the literature review, one (1) medical specialties that would potentially use precipitated sulfur was identified: dermatology. Semi-structured interviews were conducted with subject matter experts within this specialty. Interviews lasted from 30-75 minutes and were conducted either via telephone or in-person. Criteria for selecting subject matter experts included recommendations provided by specialty professional associations, convenient geographic location, authorship within the specialty, or referral by an interviewee. Up to nine (9) interviews were conducted per substance. One (1) expert was contacted for interviews, of which one (1) accepted and zero (0) declined interviews. The interview was recorded and transcribed via ©Rev.com. QSR International’s Nvivo 12 software was utilized for qualitative data analysis. The University of Maryland, Baltimore IRB and the Food & Drug Administration RIHSC reviewed the study and found it to be exempt. Subject matter experts provided their oral informed consent to participate in interviews.

Survey

General professional medical associations and specialty associations for dermatology, identified from the nominations and literature review, were contacted to facilitate distribution of an online survey. A Google™ search was conducted to identify relevant professional associations within each specialty. Associations were included if their members are predominantly practitioners, national associations, and organizations focused on practice within the US. Organizations without practicing physicians and state or regional organizations were excluded. The association’s website was searched in order to identify the email of the executive director, regulatory director, media director, association president, board members, or other key leaders within the organization to discuss survey participation. If no contact information was available, the “contact us” tab on the association website was used.

An online survey was created using Qualtrics® software (Provo, UT). The survey link was distributed to four (4) associations. If an association had more than one (1) substance with indications relevant to that specialty, substances were combined into one (1) survey with no more than 14 substances per survey. Table 1 highlights the associations that agreed to distribute the survey link and Table 2 includes the associations that declined to participate. Additionally, single substance surveys were created and posted on the project website which was shared with survey participants.

Participation was anonymous and voluntary. The estimated time for completion was 30 minutes with a target of 50 responses per survey. The Office of Management and Budget (OMB) approved this project.

Table 1. Participating associations

Specialty	Association
Dermatology	American Academy of Dermatology (AAD)
	American Society for Dermatologic Surgery (ASDS)

Table 2. Associations that declined participation

Specialty	Association	Reasons for Declining
Medicine	American Medical Association (AMA)	Failed to respond
	American Osteopathic Association (AOA)	Failed to respond

CURRENT AND HISTORIC USE

Summary of background information

- Precipitated sulfur is not available as an FDA-approved product.
- Precipitated sulfur is available in various topical dosage forms as an OTC product in the US.
- There is a current United States Pharmacopeia (USP) monograph for precipitated sulfur.
- Precipitated sulfur is available in Saudi Arabia.

Table 3. Currently approved products – US

No approved products in the US

Table 4. Currently approved products – select non-US countries and regions^a

Active Ingredient	Concentration	Dosage Form	ROA	Approved For Use		
				Country	Status	Approval Date
Sulfur	5%, 10%	Ointment	Topical	Saudi Arabia	Prescription	–

Abbreviations: “–”, not mentioned; ROA, route of administration.

^aMedicine registers of national regulatory agencies were searched if they met the following criteria: freely accessible; able to search and retrieve results in English language; and desired information (product trade name, active ingredient, strength, form, ROA, and approval status) provided in a useable format. Information was recorded only for products with strengths, forms and/or ROA similar to those requested in the nominations. See Methodology for full explanation.

Summary of literature review

- Total number of studies included: 23 studies (1 descriptive, 10 experimental, and 12 observational).
- Most of the studies were from China and US (4 studies each).
- There were no studies identified with the nominated combinations.
- The most common indication for the use of precipitated sulfur in the US was acne. The most common indications from the non-US studies were scabies and acne.
- Compounded products were identified from both US (ointment, suppository, and a lotion 0.5%) and non-US studies (cream 0.5-25%, ointment 5-10%, and lotion).

Table 5. Types of studies

Types of Studies	Number of Studies
Descriptive ¹	1
Experimental ²⁻¹¹	10
Observational ¹²⁻²³	12

Table 6. Number of studies by country

Country	Number of Studies
Brazil ²²	1
Canada ^{9,15,23}	3
China ^{1,14,17,21}	4
Commonwealth of Dominica ¹²	1
Iran ³	1
Iraq ¹⁰	1
Italy ⁶	1
Mexico ⁴	1
Nigeria ²	1
Poland ⁸	1
Spain ¹⁶	1
Thailand ^{11,20}	2
Turkey ¹³	1
US ^{5,7,18,19}	4
Total US: 4 Total non-US Countries: 19	

Table 7. Number of studies by combinations

	Combination Formula	Number of Studies
Nominated	Precipitated sulfur 3% / Salicylic acid 6%	0
	Precipitated sulfur 2-9% / Niacinamide 4% / Sodium sulfacetamide 10%	0
	Precipitated sulfur 4% / Salicylic acid 2-5% / Sodium sulfacetamide 8-10%	0
Others found in literature	Precipitated sulfur / Antipyrene – lotion ²³	1
	Precipitated sulfur / Carbowax – ointment ¹⁹	1
	Precipitated sulfur 0.5% / Hydrocortisone 0.75% – lotion ¹⁸	1
	Precipitated sulfur 0.5-25% / Benzoyl peroxide 1.25-20% – cream ⁹	1
	Precipitated sulfur / Salicylic acid 10-25% – ointment ¹²	1
	Precipitated sulfur 5% / Salicylic acid 2% – shampoo ⁷	1
	Precipitated sulfur 10% / Salicylic acid 1% – cream ⁴	1
	Precipitated sulfur 1% / Niacinamide / Salicylic acid ⁵	1
Precipitated sulfur 1% / Resorcinol / Salicylic acid ⁶	1	

Table 8. Dosage by indication – US

Indication	Dose	Concentration	Dosage Form	ROA	Duration of Treatment
Acne ^{5,18}	–	1%	–	–	7 days
		0.5%	Lotion	Topical	–
Seborrheic dermatitis ⁷	–	2%	Shampoo	Topical	At least 3 months
Mixed dermatitis ¹⁸	–	0.5%	Lotion	Topical	–
Monilia infection ¹⁹	–	–	Ointment, suppository	Topical, vaginal	5 weeks-2 years
Rosacea ¹⁸	–	0.5%	Lotion	Topical	–

Abbreviations: “–”, not mentioned; ROA, route of administration.

Table 9. Dosage by indication – non-US countries

Indication	Dose	Concentration	Dosage Form	ROA	Duration of Treatment
Scabies ^{1-4,8,10-12,14,16,20-22}	–	3-20%	Cream, ointment	Topical	1 day-1 month
Acne ^{2,6,9,15,23}	–	0.5-25%	Cream, ointment	Topical	2 weeks-4 months
Bacterial/fungal skin infections ²	–	–	Ointment	Topical	4 weeks
Dandruff ²	–	–	Ointment	Topical	4 weeks
Furuncular myiasis ¹⁷	–	10%	Ointment	Topical	Once

Abbreviations: “–”, not mentioned; ROA, route of administration.

Table 10. Compounded products – US

Indication	Publication Year	Compounding Method	Dosage Form	Final Strength
Acne, mixed dermatitis, rosacea ¹⁸	2008	<ul style="list-style-type: none"> “Pharmacy compounded precipitated sulfur 0.5% and hydrocortisone 0.75% in a lotion base” 	Lotion	0.5%
Monilia infection ¹⁹	1952	<ul style="list-style-type: none"> Carbowax 1500 400mg and carbowax 1540 heated in a flask until melted in a hot air oven. Then 5 g of sublimed flowers of sulfur U.S.P added. Flask was well shaken and returned to the oven. The mixture was then poured into a liter beaker and stood at room temperature for 24 hours to solidify to a readily absorbed ointment Suppositories were prepared the same way except the ointment was stiffened with more carbowax 1540 	Ointment, suppository	–

Abbreviation: “–”, not mentioned.

Table 11. Compounded products – non-US countries

Indication	Compounding Method	Dosage Form	Final Strength
Scabies ^{4,10,11,20}	<ul style="list-style-type: none"> • “Sulfur in either cold cream vehicle or a pork fat vehicle with 1% salicylic acid as preservative”⁴ 	Ointment	–
	<ul style="list-style-type: none"> • Precipitated sulfur in petroleum base²⁰ 	Ointment	5-10%
	<ul style="list-style-type: none"> • Powder sulfur 8 or 10 g dissolved in 15 mL castor oil to become precipitated, then mixed with 75 grams of Vaseline¹⁰ 		
	<ul style="list-style-type: none"> • “made by pharmacists”¹¹ 		
Acne ^{9,15,23}	<ul style="list-style-type: none"> • Precipitated sulfur in petroleum base¹⁵ 	Ointment	10%
	<ul style="list-style-type: none"> • Benzoyl peroxide 6 g, chloroform 3.75 mL, oil-in-water emulsion base to make 120 g for a benzoyl peroxide 5% cream. Precipitated sulfur is added when the prescription is filled⁹ 	Cream	0.5-25%
	<ul style="list-style-type: none"> • Sulfur 7.5²³ • Sodium mixed alkyl benzene sulfonate 110 • Antipyrine 54 • Triethanolamine 100 • Propylene glycol 560 • Water 168.5 <p>*parts by weight</p>	Lotion	–

Abbreviation: “–”, not mentioned.

Summary of focus groups/interviews of medical experts and specialty organizations

One (1) interview was conducted.

Table 12. Overview of interviewee

Interviewee	Level of Training	Specialty	Current Practice Setting	Experience with Precipitated Sulfur	Interview Summary Response
DER_07	MD	Dermatology/ Immunology	Independent consultant	Not specified	<ul style="list-style-type: none"> • Has been around for a long time • There are some OTC products but may not be in the nominated formulations. The preferred formulation often has to do with how the prescriber was trained. • Would probably be getting in bulk for the office since treatment is often long-term.

Indications for precipitated sulfur

- Keratolytic for acne
- Many properties such as anti-bacterial, anti-fungal, anti-inflammatory, and anti-keratolytic.

Compounding precipitated sulfur

- Although there are some precipitated sulfur products available OTC, there are not products available in the specific concentrations/combinations purposed. The interviewee also said, “I don’t know how much that stuff sells nowadays but precipitated sulfur is not in many products. They’re just left to these compounding products.”
- Some patients may not tolerate other substances used to treat acne such as benzoyl peroxide and retinoids so compounding precipitated sulfur could be an option.
- The interviewee stated that the “proposed concentrations are not really going to hurt anybody.” There are probably better products on the market but most of the time the preferred formulation has to do with how the prescriber was trained.

Need for “office stock”

- Precipitated sulfur would be used long-term so a prescriber using it would most likely get it in bulk.

Summary of survey results

Table 13. Characteristics of survey respondents [3 people responded to survey^a]

Board Certification	MD
Dermatology	3
Pediatric Dermatology	1

Abbreviation: MD, Doctor of Medicine.

^aSome respondents reported more than one terminal clinical degree or board certification.

Table 14. Types of products used, prescribed, or recommended

Types of Products	Respondents, n (N=2^a)
Compounded	1 ^b
FDA-approved	1
Over-the-counter	1
Dietary	0
Unsure	0
No response	0

^aOut of three (3) respondents, two (2) reported using, prescribing, or recommending multiple types of precipitated sulfur product.

^bOne (1) respondent used in combination: “2% sulfur/ 1% hydrocortisone.”

Table 15. Compounded use of precipitated sulfur in practice^a

Indication	Strength	Dosing frequency	Dosage Form	ROA	Duration of Treatment^b	Patient Population^b
Seborrheic dermatitis	2%	Daily	Cream	Topical	As needed for a year	Adult male and female

Abbreviation: ROA, route of administration.

^aOne (1) respondent.

Table 16. Indications for which precipitated sulfur is considered a standard therapy

Indication	Standard Therapy ^a	
	Compounded, n (N=1)	Non-Compounded, n (N=1)
Acne	1	1
Seborrheic dermatitis	1	1
Rosacea	1	1
No response	0	0

^aSome respondents reported more than one indication.

Table 17. Reasons for using compounded product instead of the FDA-approved products

Reasons
“Superior results for Seborrheic dermatitis and Rosacea compared to FDA approved products”

Table 18. Change in frequency of compounded precipitated sulfur usage over the past 5 years

	Respondents, n (N=1)
No—use has remained consistent	1
Yes—I use it LESS often now	0
Yes—I use it MORE often now	0

Table 19. Do you stock non-patient specific compounded precipitated sulfur in your practice?

	Respondents, n (N=1)
No	1
Yes	0

Table 20. Questions related to stocking non-patient specific compounded precipitated sulfur

No survey respondents provided this information

CONCLUSION

Precipitated sulfur (UNII code: 70FD1KFU70) was nominated for inclusion on the 503B Bulks List. While the exact medical condition in which the compounded product is intended to treat is generally unknown, precipitated sulfur is generally used to treat acne and seborrheic psoriasis. Precipitated sulfur will be compounded in various topical dosage forms and strengths based on the prescriber's request; the therapeutic dose ranges from 2-9%. Additionally, precipitated sulfur will be compounded as a 2-9% topical gel, cream, body wash, and lotion in combination with other active pharmaceutical ingredients (API) for treatment of acne and seborrheic psoriasis. Precipitated sulfur is available in various topical dosage forms as an OTC product in the US and has a current USP monograph. Precipitated sulfur is also available in Saudi Arabia.

From the literature review, the most common indication in the US was acne. The most common indications from the non-US studies were scabies and acne. Compounded products were identified from both US (ointment, suppository, and a lotion 0.5%) and non-US studies (cream 0.5-25%, ointment 5-10%, and lotion). There were no studies identified with the nominated combinations.

From the interview conducted, the interviewee stated that precipitated sulfur has been around for a long time and that there are some OTC products that may not be in the nominated formulations. Prescriber preference for formulations usually is due to how they were trained. If the prescriber is using precipitated sulfur, they would probably be getting in bulk since treatment is often long-term.

From the survey responses, two (2) out of three (3) respondents used precipitated sulfur. One (1) respondent reported using compounded precipitated sulfur and in combinations with hydrocortisone. Two (2) respondents reported acne, seborrheic dermatitis, and rosacea as indications for standard therapy for both compounding and non-compounded precipitated sulfur. No respondents reported stocking compounded precipitated sulfur.

APPENDICES

Appendix 1. References

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Appendix 2. Survey instrument

Start of Block: Welcome Page

The University of Maryland Center of Excellence in Regulatory Science and Innovation (M-CERSI), in collaboration with the Food and Drug Administration (FDA), is conducting research regarding the use of certain bulk drug substances nominated for use in compounding by outsourcing facilities under section 503B of the Federal Food, Drug, and Cosmetic Act. In particular, we are interested in the current and historic use of these substances in clinical practice. This survey is for **precipitated sulfur**. As a medical expert, we appreciate your input regarding the use of this substance in your clinical practice. This information will assist FDA in its development of a list of bulk drug substances that outsourcing facilities can use in compounding under section 503B of the Act. All responses are anonymous.

OMB Control No. 0910-0871

Expiration date: June 30, 2022

The time required to complete this information collection is estimated to average 30 minutes, including the time to review instructions, search existing data sources, gather the data needed, and complete and review the information collection. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. If you have additional questions or concerns about this research study, please email: compounding@rx.umaryland.edu. If you have questions about your rights as a research subject, please contact HRPO at 410-760-5037 or hrpo@umaryland.edu.

End of Block: Welcome Page

Start of Block: Precipitated sulfur

Q1. What type(s) of product(s) do you use, prescribe, or recommend for **precipitated sulfur**? Please check all that apply.

- Compounded drug product
- FDA-approved drug product
- Over the counter drug product
- Dietary supplement (e.g. vitamin or herbal supplement products sold in retail setting)
- Unsure

Skip To: Q13 If What type(s) of product(s) do you use, prescribe, or recommend for precipitated sulfur? Please check all th... != Compounded drug product

Skip To: Q2 If What type(s) of product(s) do you use, prescribe, or recommend for precipitated sulfur? Please check all th... = Compounded drug product

Display This Question:

If What type(s) of product(s) do you use, prescribe, or recommend for precipitated sulfur? Please check all th... = Compounded drug product

Q2. Please list any conditions or diseases for which you use compounded **precipitated sulfur** in your practice. Please include the strength(s), dosing frequency(ies), dosage form(s), route(s) of administration, duration of therapy, and patient population (ex. age, gender, comorbidities, allergies, etc).

	Strength(s) (please include units)	Dosing frequency(ies)	Dosage form(s)	Route(s) of administration	Duration of therapy	Patient population
Condition 1 (please describe)						
Condition 2 (please describe)						
Condition 3 (please describe)						
Condition 4 (please describe)						
Condition 5 (please describe)						

Q3. Do you use compounded **precipitated sulfur** as a single agent active ingredient, or as one active ingredient in a combination product? Please check all that apply.

- Single
- Combination

Skip To: Q5 If Do you use compounded precipitated sulfur as a single agent active ingredient, or as one active ingredient... != Combination

Display This Question:

If Loop current: Do you use compounded precipitated sulfur as a single agent active ingredient, or as one active ingredient... = Combination

Q4. In which combination(s) do you use compounded **precipitated sulfur**? Please check all that apply.

- Precipitated sulfur 2-9% / Niacinamide 4% / Sodium sulfacetamide 10%
- Precipitated sulfur 3% / Salicylic acid 6%
- Precipitated sulfur 4% / Salicylic acid 2-5% / Sodium sulfacetamide 8-10%
- Other (please describe) _____

Q5. For which, if any, diseases or conditions do you consider compounded **precipitated sulfur** standard therapy?

Q6. Does your specialty describe the use of compounded **precipitated sulfur** in medical practice guidelines or other resources?

Q7. Over the past 5 years, has the frequency in which you have used compounded **precipitated sulfur** changed?

- Yes - I use it **MORE** often now (briefly describe why) _____
- Yes - I use it **LESS** often now (briefly describe why) _____
- No - use has remained consistent

Q8. Why do you use compounded **precipitated sulfur** instead of any FDA-approved drug product?

Q9. Do you stock non-patient-specific compounded **precipitated sulfur** in your practice location?

- Yes
- No

Skip To: End of Block If Do you stock non-patient-specific compounded precipitated sulfur in your practice location? = No

Display This Question:

If Do you stock non-patient-specific compounded precipitated sulfur in your practice location? = Yes

Q10. In what practice location(s) do you stock non-patient-specific compounded **precipitated sulfur**? Please check all that apply.

- Physician office
- Outpatient clinic
- Emergency room
- Operating room
- Inpatient ward
- Other (please describe) _____

Q11. How do you obtain your stock of non-patient-specific compounded **precipitated sulfur**? Please check all that apply.

- Purchase from a compounding pharmacy
- Purchase from an outsourcing facility
- Compound the product yourself
- Other (please describe) _____

Q12. Why do you keep a stock of non-patient-specific compounded **precipitated sulfur**? Please check all that apply.

- Convenience
- Emergencies
- Other (please describe) _____

Skip To: End of Block If Why do you keep a stock of non-patient-specific compounded precipitated sulfur? Please check all that apply. = Convenience

Skip To: End of Block If Why do you keep a stock of non-patient-specific compounded precipitated sulfur? Please check all that apply. = Emergencies

Skip To: End of Block If Why do you keep a stock of non-patient-specific compounded precipitated sulfur? Please check all that apply. = Other (please describe)

Q13. For which, if any, diseases or conditions do you consider **precipitated sulfur** standard therapy?

Q14. Does your specialty describe the use of **precipitated sulfur** in medical practice guidelines or other resources?

End of Block: Precipitated sulfur

Start of Block: Background Information

Q15. What is your terminal clinical degree? Please check all that apply.

- Doctor of Medicine (MD)
- Doctor of Osteopathic Medicine (DO)
- Doctor of Medicine in Dentistry (DMD/DDS)
- Naturopathic Doctor (ND)
- Nurse Practitioner (NP)
- Physician Assistant (PA)
- Other (please describe) _____

Q16. Which of the following Board certification(s) do you hold? Please check all that apply.

- No Board certification
- Allergy and Immunology
- Anesthesiology
- Cardiovascular Disease
- Critical Care Medicine
- Dermatology
- Emergency Medicine
- Endocrinology, Diabetes and Metabolism
- Family Medicine
- Gastroenterology
- Hematology
- Infectious Disease
- Internal Medicine
- Medical Toxicology
- Naturopathic Doctor
- Naturopathic Physician
- Nephrology
- Neurology
- Obstetrics and Gynecology
- Oncology
- Ophthalmology
- Otolaryngology
- Pain Medicine
- Pediatrics
- Psychiatry
- Rheumatology
- Sleep Medicine

- Surgery (please describe) _____
- Urology
- Other (please describe) _____

End of Block: Background Information