NOSB NATIONAL LIST
FILE CHECKLIST

PROCESSING

MATERIAL NAME: #1 Calcium sulfate

☑️ NOSB Database Form

☐ References

☑️ MSDS (or equivalent)

☐ FASP (FDA)

Material Name: #1 Calcium sulfate

Please use this page to write down comments, questions, and your anticipated vote(s).

COMMENTS/QUESTIONS:

1. In my opinion, this material is:
   _____ Synthetic _____ Non-synthetic.

2. Should this material be allowed in an “organic food” (95% or higher organic ingredients)? _____ Yes _____ No
   *(IF NO, PROCEED TO QUESTION 3.)*

3. Should this substance be allowed in a “food made with organic ingredients” (50% or higher organic ingredients)? _____ Yes _____ No
TAP REVIEWER COMMENT FORM for USDA/NOSB

Use this page or an equivalent to write down comments and summarize your evaluation regarding the data presented in the file of this potential National List material. Complete both sides of page. Attach additional sheets if you wish.

This file is due back to us by: Aug. 5, 1996

Name of Material: Calcium Sulfate

Reviewer Name: William A. Zimmer D.V.M

RECEIVED JUL 30 1996

Is this substance Synthetic or non-synthetic? Explain (if appropriate)

Non-synthetic - commonly found natural or mined ore

If synthetic, how is the material made? (please answer here if our database form is blank)

This material should be added to the National List as:

___ Synthetic Allowed ___ Prohibited Natural

or, ___ Non-synthetic (Allowed as an ingredient in organic food)

___ Non-synthetic (Allowed as a processing aid for organic food)

or, X this material should not be on the National List

Are there any use restrictions or limitations that should be placed on this material on the National List?

Large reserves of calcium sulfate (gypsum) exist which are byproducts of industrial processing. These should not be allowed for organic use due to contamination with numerous potentially toxic substances - solvent, etc.

Please comment on the accuracy of the information in the file:

Properties - naturally occurring grey, white ore
Type of use - soil nutrient, amendment providing calcium and sulfur

Any additional comments? (attachments welcomed)

Information currently limited to processing only!

Do you have a commercial interest in this material? X Yes; ___ No

Signature William A. Zimmer D.V.M

Date 7/8/96
Please address the 7 criteria in the Organic Foods Production Act:
(comment in those areas you feel are applicable)

(1) the potential of such substances for detrimental chemical interactions with other materials used in organic farming systems;

As Soil nutrient — none
As Animal nutrient — minimal; excessive feeding levels could produce a sulfate excess. Under the anaerobic conditions of the digestive tract, hydrogen sulfide gas could be formed. No detrimental actions

(2) the toxicity and mode of action of the substance and of its breakdown products or any contaminants, and their persistence and areas of concentration in the environment;

None — Toxic compounds could only arise from contaminants added to calcium sulfate as byproducts of industrial processing.

(3) the probability of environmental contamination during manufacture, use, misuse or disposal of such substance; None — land application provides usable plant nutrients

(4) the effect of the substance on human health;

Not applicable

(5) the effects of the substance on biological and chemical interactions in the agroecosystem, including the physiological effects of the substance on soil organisms (including the salt index and solubility of the soil), crops and livestock;

Source of soil nutrients — calcium and sulfur, generally considered to improve soil tilth, biological activity, and soil productivity. Source of available crop nutrients. Source of available livestock nutrients.

(6) the alternatives to using the substance in terms of practices or other available materials; and combinations of other sulfur or calcium containing compounds, e.g., calcium carbonate, calcium oxide, potassium sulfate, magnesium sulfate, elemental sulfur, as nutrient sources

(7) its compatibility with a system of sustainable agriculture.

Very compatible
TAP REVIEWER COMMENT FORM for USDA/NOSB

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This file is due back to us by: Aug. 5, 1996

Name of Material: Calcium Sulfate

Reviewer Name: RC Theurer RECEIVED AUG 0 5 1996

Is this substance Synthetic or non-synthetic? Explain (if appropriate)

SYNTHETIC

If synthetic, how is the material made? (please answer here if our database form is blank)

This material should be added to the National List as:

✓ Synthetic Allowed   ___ Prohibited Natural

or, ___ Non-synthetic (Allowed as an ingredient in organic food)

___ Non-synthetic (Allowed as a processing aid for organic food)

or, ___ this material should not be on the National List

Are there any use restrictions or limitations that should be placed on this material on the National List?

Please comment on the accuracy of the information in the file:

Adequate

Any additional comments? (attachments welcomed)

Do you have a commercial interest in this material? Yes: ✓ No

Signature R.C. Theurer Date 8/5/96
Mailing date: 1 Jul 1996.        Due date: 5 Aug 1996

Name of Materials: Calcium Sulfate, Food Grade
Reviewer Name: Richard C. Theuer

SYNTHETIC: The natural mineral "gypsum" is calcium sulfate. However, for food use the purity requirements demand a synthetic material made by reacting calcium hydroxide with sulfuric acid. Both calcium hydroxide and sulfuric acid are synthetic materials, so their reaction product, calcium sulfate, is synthetic as well.

COMMENTS RE SECTION 2119(m) CRITERIA:
1. Inhalation of calcium sulfate dust is the only real hazard with this material.
2. Calcium is an essential nutrient, the level of which must be labeled in the Nutrition Facts box. Calcium sulfate is relative insoluble but has some bioavailability.
3. Calcium sulfate (gypsum) is used to treat clay soils so the relatively small amounts of calcium sulfate used in foods would not represent a hazard to soil microorganisms or crops.

The following synthetic substance should be allowed as an ingredient in organic foods. It should be added to the National List of synthetic substances allowed for use as ingredients or processing aids in Organic Food:

  calcium sulfate

August 5, 1996
TAP REVIEWER COMMENT FORM for USDA/NOSB

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This file is due back to us by: **Aug. 5, 1996**

Name of Material: **Calcium Sulfate**

Reviewer Name: **Steve Taylor**

RECEIVED AUG 25, 1996

Is this substance Synthetic or non-synthetic? Explain (if appropriate)

If synthetic, how is the material made? (please answer here if our database form is blank)

I do not know how this substance is made so will obtain

This material should be added to the National List as:

- Synthetic Allowed
- **Prohibited Natural**

or,
- **Non-synthetic** (Allowed as an ingredient in organic food)
- Non-synthetic (Allowed as a processing aid for organic food)

or, this material should not be on the National List

Are there any use restrictions or limitations that should be placed on this material on the National List?

Please comment on the accuracy of the information in the file:

Any additional comments? (attachments welcomed)

Do you have a commercial interest in this material? **Yes; X No**

Signature **Steve Taylor** Date **8/5/96**
Please address the 7 criteria in the Organic Foods Production Act:
(comment in those areas you feel are applicable)

(1) the potential of such substances for detrimental chemical interactions with other
materials used in organic farming systems;

Virtually none

(2) the toxicity and mode of action of the substance and of its breakdown products or
any contaminants, and their persistence and areas of concentration in the
environment;

Calcium sulfate is a nutrient source for Ca; toxicity observed
only at very high doses.

(3) the probability of environmental contamination during manufacture, use, misuse
or disposal of such substance;

Virtually none

(4) the effect of the substance on human health;

Beneficial effect from as source of calcium

(5) the effects of the substance on biological and chemical interactions in the
agroecosystem, including the physiological effects of the substance on soil
organisms (including the salt index and solubility of the soil), crops and livestock;

W/A

(6) the alternatives to using the substance in terms of practices or other available
materials; and

Other calcium salts

(7) its compatibility with a system of sustainable agriculture.
TAP REVIEWER COMMENT FORM for USDA/NOSB

Use this page or an equivalent to write down comments and summarize your evaluation regarding the data presented in the file of this potential National List material. Complete both sides of page. Attach additional sheets if you wish.

This file is due back to us by: Aug. 5, 1996

Name of Material: Calcium Sulfate

Reviewer Name: Joe Montecalvo RECEIVED AUG 05 1996

Is this substance Synthetic or non-synthetic? Explain (if appropriate)

Synthetic

If synthetic, how is the material made? (please answer here if our database form is blank) See database.

This material should be added to the National List as:

✓ Synthetic Allowed  □ Prohibited Natural

or, □ Non-synthetic (Allowed as an ingredient in organic food)

□ Non-synthetic (Allowed as a processing aid for organic food)

or, □ this material should not be on the National List

Are there any use restrictions or limitations that should be placed on this material on the National List?

- Should only be used as a firming agent for canned vegetables generally < 0.1%

Please comment on the accuracy of the information in the file:

ocal

Any additional comments? (attachments welcomed)

for:

Do you have a commercial interest in this material? □ Yes; ✓ No

Signature [Signature] Date 7/27/96
Please address the 7 criteria in the Organic Foods Production Act:
(comment in those areas you feel are applicable)

(1) the potential of such substances for detrimental chemical interactions with other materials used in organic farming systems;

(2) the toxicity and mode of action of the substance and of its breakdown products or any contaminants, and their persistence and areas of concentration in the environment;

(3) the probability of environmental contamination during manufacture, use, misuse or disposal of such substance;

(4) the effect of the substance on human health;

   consumption on a regular basis may lead to intestinal obstruction

(5) the effects of the substance on biological and chemical interactions in the agroecosystem, including the physiological effects of the substance on soil organisms (including the salt index and solubility of the soil), crops and livestock;

(6) the alternatives to using the substance in terms of practices or other available materials; and

(7) its compatibility with a system of sustainable agriculture.
Common Name
Calcium Sulfate

Chemical Name

Identification

Reg. No. 7778-18-9

Code #: Other

MSDS   @ yes  o no

Chemistry

Family
Composition
CaSO₄·H₂O  Case of CaSO₄·2H₂O

Properties
Calcium sulfate is anhydrous or contains two molecules of water of hydration. It occurs as a fine, white to slightly yellow white, odorless powder.

How Made
From natural sources and as a byproduct in many chemical operations

Use/Action

Type of Use
Processing

Specific Use(s)
Nutrient; dietary supplement; yeast food; dough conditioner; firming agent; sequestrant. - in Freeze

Status

OFPA

N. L. Restriction

EPA, FDA, etc

Directions

Safety Guidelines

Historical status

International status
2119(m)1: chemical interactions

2119(m)2: toxicity & persistence

2119(m)3: manufacture & disposal consequences

2119(m)4: effect on human health

2119(m)5: agroecosystem biology

2119(m)6: alternatives to substance

2119(m)7: is it compatible?

References
TAP REVIEWER COMMENT FORM for USDA/NOSB

Use this page or an equivalent to write down comments and summarize your evaluation regarding the data presented in the file of this potential National List material. Complete both sides of page. Attach additional sheets if you wish.

This file is due back to us by: Aug. 5, 1996

Name of Material: Calcium Sulfate

Reviewer Name: Walter Jeffery

Is this substance Synthetic or non-synthetic? Explain (if appropriate)

- [ ] non-synthetic if mined product
  
  If synthetic, how is the material made? (please answer here if our database form is blank)
  
  Anhydrite, gypsum, and hemihydrate are mined products. Some synthetic gypsum is produced from stockpiles as a byproduct of iron and steel production. It is fully compostable.

This material should be added to the National List as:

- [ ] Synthetic Allowed
- [ ] Prohibited Natural

or, ___ Non-synthetic (Allowed as an ingredient in organic food)

[ ] Non-synthetic (Allowed as a processing aid for organic food)

or, ___ this material should not be on the National List

Are there any use restrictions or limitations that should be placed on this material on the National List?

- [ ] mined product allowed

Please comment on the accuracy of the information in the file:

Any additional comments? (attachments welcomed)

Do you have a commercial interest in this material? ___ Yes; ___ No

Signature: Walter Jeffery

Date: 7/21/96
Please address the 7 criteria in the Organic Foods Production Act:
(comment in those areas you feel are applicable)

(1) the potential of such substances for detrimental chemical interactions with other materials used in organic farming systems;

(2) the toxicity and mode of action of the substance and of its breakdown products or any contaminants, and their persistence and areas of concentration in the environment;

(3) the probability of environmental contamination during manufacture, use, misuse or disposal of such substance;
   very little

(4) the effect of the substance on human health;
   non-toxic

(5) the effects of the substance on biological and chemical interactions in the agroecosystem, including the physiological effects of the substance on soil organisms (including the salt index and solubility of the soil), crops and livestock;

(6) the alternatives to using the substance in terms of practices or other available materials; and

(7) its compatibility with a system of sustainable agriculture.
NOSB Materials Database

Identification

Common Name: Calcium Sulfate
Other Names:
Code #: CAS: Reg. No. 7778-18-9
N. L. Category:

Chemical Name:

Code #: Other:
MSDS: yes

Chemistry

Family:
Composition: CaSO₄·H₂O
Properties: Calcium sulfate is anhydrous or contains two molecules of water of hydration. It occurs as a fine, white to slightly yellow white, odorless powder.
How Made:

Use/Action

Type of Use: Processing
Specific Use(s): Nutrient; dietary supplement; yeast food; dough conditioner; firming agent; sequestrant.
Action Combinations:

Status

OFPA
N. L. Restriction
EPA, FDA, etc
Directions
Safety Guidelines
Historical status
International status
1 - PRODUCT IDENTIFICATION

PRODUCT NAME: CALCIUM SULFATE, DIHYDRATE, POWDER
FORMULA: CaSO₄ 2H₂O
FORMULA WT: 172.17
CAS NO.: 10101-41-4
NIOSH/RTECS NO.: EW4150000
COMMON SYNONYMS: GYPSUM; ALABASTER; C.I. 77231; C.I. PIGMENT WHITE 25
PRODUCT CODES: 1452
EFFECTIVE: 05/05/86
REVISION #01
PRECAUTIONARY LABELLING
BAKER SAF-T-DATA(TM) SYSTEM
HEALTH - 0 NONE
FLAMMABILITY - 0 NONE
REACTIVITY - 0 NONE
CONTACT - 1 SLIGHT
HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).
LABORATORY PROTECTIVE EQUIPMENT
SAFETY GLASSES; LAB COAT
PRECAUTIONARY LABEL STATEMENTS
CAUTION
MAY CAUSE IRRITATION
DURING USE AVOID CONTACT WITH EYES, SKIN, CLOTHING. WASH THOROUGHLY AFTER HANDLING. WHEN NOT IN USE KEEP IN TIGHTLY CLOSED CONTAINER.
SAF-T-DATA(TM) STORAGE COLOR CODE: ORANGE (GENERAL STORAGE)

2 - HAZARDOUS COMPONENTS

COMPONENT% CAS NO.
NOT APPLICABLE

3 - PHYSICAL DATA

BOILING POINT: N/AVAPOR PRESSURE(MM HG): N/A
MELTING POINT: N/AVAPOR DENSITY(AIR=1): N/A
SPECIFIC GRAVITY: 2.32 EVAPORATION RATE: N/A
(H₂O=1) (BUTYL ACETATE=1)

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SOLUBILITY(H₂O): MODERATE (1 TO 10 %) % VOLATILES BY VOLUME: 0
APPEARANCE & ODOR: WHITE, ODORLESS POWDER.

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4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP: N/A
FLAMMABLE LIMITS: UPPER - N/A % LOWER - N/A %
FIRE EXTINGUISHING MEDIA
USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.
SPECIAL FIRE-FIGHTING PROCEDURES
FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED
BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE.
TOXIC GASES PRODUCED
SULFUR DIOXIDE

5 - HEALTH HAZARD DATA

CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO
EFFECTS OF OVEREXPOSURE
DUST MAY IRRITATE EYES.
TARGET ORGANS
1 - PRODUCT IDENTIFICATION

PRODUCT NAME: CALCIUM SULFATE, 1/2-HYDRATE, POWDER
FORMULA: CAS04 1/2H2O
FORMULA WT: 145.15
CAS NO.: 7788-18-9
COMMON SYNONYMS: PLASTER OF PARIS; DRIED GYPSUM
PRODUCT CODES: 1463
EFFECTIVE: 05/22/86
REVISION #:01

PRECAUTIONARY LABELING

BAKER SAF-T-DATA(TM) SYSTEM
HEALTH - 1 SLIGHT
FLAMMABILITY - 0 NONE
REACTIVITY - 0 NONE
CONTACT - 1 SLIGHT

HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).

LABORATORY PROTECTIVE EQUIPMENT

SAFETY GLASSES; LAB COAT
PRECAUTIONARY LABEL STATEMENTS

CAUTION

MAY CAUSE IRRITATION
DURING USE AVOID CONTACT WITH EYES, SKIN, CLOTHING. WASH THOROUGHLY AFTER
HANDLING. WHEN NOT IN USE KEEP IN TIGHTLY CLOSED CONTAINER.

SAF-T-DATA(TM) STORAGE COLOR CODE: ORANGE (GENERAL STORAGE)

2 - HAZARDOUS COMPONENTS

COMPONENTS CAS NO.
NOT APPLICABLE

3 - PHYSICAL DATA

BOILING POINT: N/AVAPOR PRESSURE(MM HG): N/A
MELTING POINT: N/AVAPOR DENSITY(AIR=1): N/A
SPECIFIC GRAVITY: N/AVAPORATION RATE: N/A
   (H2O=1) (Butyl Acetate=1)
SOLUBILITY(H2O): SLIGHT (0.1 TO 1 %) % VOLATILES BY VOLUME: 0

4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP): N/A
FLAMMABLE LIMITS: UPPER - N/A % LOWER - N/A %
FIRE EXTINGUISHING MEDIA
USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.
SPECIAL FIRE-FIGHTING PROCEDURES
FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE.

TOXIC GASES PRODUCED
SULFUR DIOXIDE

5 - HEALTH HAZARD DATA

CARCINOGENICITY: NTP: NO IARC: NO 2 LIST: NO OSHA REG: NO

EFFECTS OF OVEREXPOSURE
DUST MAY IRRITATE SKIN OR EYES.

TARGET ORGANS
NONE IDENTIFIED

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE
NONE IDENTIFIED

ROUTES OF ENTRY
NONE INDICATED

EMERGENCY AND FIRST AID PROCEDURES

INGESTION: IF SWALLOWED AND THE PERSON IS CONSCIOUS, IMMEDIATELY GIVE LARGE AMOUNTS OF WATER. GET MEDICAL ATTENTION.

INHALATION: IF A PERSON BREATHES IN LARGE AMOUNTS, MOVE THE EXPOSED PERSON TO FRESH AIR. GET MEDICAL ATTENTION.

EYE CONTACT: IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION.

SKIN CONTACT: IMMEDIATELY WASH WITH PLENTY OF SOAP AND WATER FOR AT LEAST 15 MINUTES.

6 - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: NONE DOCUMENTED

MSDS for CALCIUM SULFATE, 1/2-HYDRATE, POWDER Page 3

INCOMPATIBILITIES: ALUMINUM, STRONG ACIDS

DECOMPOSITION PRODUCTS: OXIDES OF SULFUR

7 - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE
WEAR SUITABLE PROTECTIVE CLOTHING. CAREFULLY SWEEP UP AND REMOVE.

DISPOSAL PROCEDURE
DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

8 - PROTECTIVE EQUIPMENT

VENTILATION: USE ADEQUATE GENERAL OR LOCAL EXHAUST VENTILATION TO KEEP FUMES OR DUST LEVELS AS LOW AS POSSIBLE.

RESPIRATORY PROTECTION: NONE REQUIRED WHERE ADEQUATE VENTILATION CONDITIONS EXIST. IF AIRBORNE CONCENTRATION IS HIGH, USE AN APPROPRIATE RESPIRATOR OR DUST MASK.

EYE/SKIN PROTECTION: SAFETY GLASSES WITH SIDESHIELDS, PROPER GLOVES ARE RECOMMENDED.
9 - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA(TM) STORAGE COLOR CODE: ORANGE (GENERAL STORAGE)
SPECIAL PRECAUTIONS
KEEP CONTAINER TIGHTLY CLOSED. SUITABLE FOR ANY GENERAL CHEMICAL STORAGE AREA.

10 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)
PROPER SHIPPING NAME CHEMICALS, N.O.S. (NON-REGULATED)

INTERNATIONAL (I.M.O.)
PROPER SHIPPING NAME CHEMICALS, N.O.S. (NON-REGULATED)
1 - PRODUCT IDENTIFICATION

PRODUCT NAME: CALCIUM SULFATE, ANHYDROUS, POWDER
FORMULA: CAS04
FORMULA WT: 136.14
CAS NO.: 07778-18-9
COMMON SYNONYMS: ANHYDRITE; ANHYDROUS GYPSUM
PRODUCT CODES: 1458
  EFFECTIVE: 05/22/86
  REVISION #01
PRECAUTIONARY LABELLING
BAKER SAF-T-DATA(TM) SYSTEM
  HEALTH - 1 SLIGHT
  FLAMMABILITY - 0 NONE
  REACTIVITY - 0 NONE
  CONTACT - 1 SLIGHT
HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).
LABORATORY PROTECTIVE EQUIPMENT
SAFETY GLASSES; LAB COAT
PRECAUTIONARY LABEL STATEMENTS
CAUTION
MAY CAUSE IRRITATION
DURING USE AVOID CONTACT WITH EYES, SKIN, CLOTHING. WASH THOROUGHLY AFTER
HANDLING. WHEN NOT IN USE KEEP IN TIGHTLY CLOSED CONTAINER.
SAF-T-DATA(TM) STORAGE COLOR CODE: ORANGE (GENERAL STORAGE)

2 - HAZARDOUS COMPONENTS

COMPONENT% CAS NO.
  NOT APPLICABLE

3 - PHYSICAL DATA

BOILING POINT: N/AVAPOR PRESSURE/MM Hg): N/A
MELTING POINT: 1450 C (2642 F) VAPOR DENSITY(AIR=1): N/A
SPECIFIC GRAVITY: 2.96 EVAPORATION RATE: N/A
(H2O=1) (BUTYL ACETATE=1)
SOLUBILITY(H2O): SLIGHT (0.1 TO 1 %) % VOLATILES BY VOLUME: 0

MSDS for CALCIUM SULFATE, ANHYDROUS, POWDER Page 2

APPEARANCE & ODOR: WHITE ODORLESS GRANULES.

4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP: N/A
FLAMMABLE LIMITS: UPPER - N/A % LOWER - N/A %
FIRE EXTINGUISHING MEDIA
  USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.
SPECIAL FIRE-FIGHTING PROCEDURES