



U.S. Department
of Transportation
**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Ave., S.E.
Washington, DC 20590

DEC 30 2008

Mr. Michael A. Capuzzi, Esq.
The Law Offices of Michael A. Capuzzi
6314 North Wyndwood Drive
Crystal Lake, IL 60014

Ref. No. 08-0294

Dear Mr. Capuzzi:

This is in response to your letter dated December 1, 2008, requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you ask for confirmation of your understanding of the labeling requirements for limited quantities of corrosive materials.

In your letter, you state a typical shipment consists of seven boxes, containing a total of 84, one-half pound jars of a material described as "Corrosive solid, n.o.s. (Zinc chloride, lithium chloride-anhydrous mixture), UN1759, PG II" and two boxes containing a total of 24, thirty-two ounce bottles of a material described as "Corrosive liquid, n.o.s. (Zinc chloride, Hydrochloric acid), UN 1760, PG III." The nine boxes are shipped together on a shrink wrapped pallet.

The HMR provide exceptions for limited quantities of Class 8 materials, depending on how they are packaged and transported. Section 173.154(b) authorizes Class 8 Packing Group II materials to be transported as a limited quantity when placed in inner packagings with a capacity of up to 1.0 L (0.3 gal) for liquids or 1.0 kg (2.2 pounds) for solids placed in a strong outer packaging. Class 8 materials meeting Packing Group III may be transported as a limited quantity when placed in inner packagings of a capacity of up to 5 L (1.3 gallons) for liquids or 5 kg (11 pounds) for solids placed in a strong outer packaging. The completed package must not exceed 30 kg (66 pounds). When complete, the package must conform to the general packaging requirements prescribed in §§ 173.24 and 173.24a. When transported by aircraft, the Class 8 material must be authorized for transport on board passenger-carrying aircraft, and the package must conform to the general requirements for transportation by aircraft prescribed § 173.27. Limited quantity packages are excepted from labeling, unless transported by aircraft, and placarding, as prescribed in Subparts E and F of Part 172. Packages containing limited quantities must be marked in accordance with Subpart D of Part 172 and the shipping paper must include the words "Limited Quantity" or "Ltd Qty" following the basic description.

Based on the information you provided, the nine boxes placed onto a pallet and surrounded in shrink wrap would meet the definition of an overpack. Authorized packages containing hazardous materials may be offered in an overpack when they meet the requirements of § 173.25. The overpack must be marked with the proper shipping name and identification number and labeled as applicable, unless the markings and labels representative of each hazardous material in the overpack are visible.

I hope this satisfies your inquiry. If we can be of further assistance, please contact us.

Sincerely,

A handwritten signature in black ink, appearing to read "Ben" followed by a stylized surname.

For

Charles E. Betts
Chief, Standards Development
Office of Hazardous Materials Standards



Leary
§172.701
§172.400
Labeling
08-0294

December 1, 2008

Office of the Chief Counsel,
Pipeline and Hazardous Materials Safety Administration
Department of Transportation
Attn: PHC-10
East Building
1200 New Jersey Avenue, SE
Washington, DC 20590-0001

Re: Interpretive Ruling Request – Labeling of
Limited Quantities

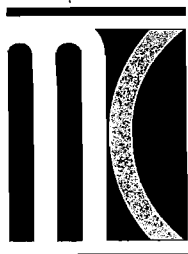
Dear Sir or Madam:

On behalf of Tacna International Corp. (hereinafter “Tacna”) and in accordance Section 105.20 of the Pipeline and Hazardous Materials Safety Administration (hereinafter “PHMSA”) regulations (49 CFR §105.20), we respectfully present the following request for an interpretive ruling. Given that on-going shipments are impacted by the guidance offered by the interpretative ruling, we respectfully request expedited processing.

I. Overview

Tacna is the importer of various goods produced in Mexico. Among the items imported are various types of solders, fluxes, and other welding preparations.

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A typical shipment consists of several packagings, e.g. jars, bottles, etc, packed in a cardboard box, with several cardboard boxes shrink-wrapped on a pallet.

For the purposes of this ruling request, we will use the following information as being representative of a typical shipment:

Seven boxes containing a total of 84 one-half pound jars of Harris Products Group Al-Braze 1070 Flux, Part JW-10701/2; and

Two boxes containing a total of 24 thirty-two ounce bottles of Harris Products Group Stay-Clean Liquid Flux, Part JW-SCLF32.

The nine boxes are shipped together on a pallet with plastic shrink-wrap surrounding the boxes.

The questions involving this type of shipment are:

- 1) What labeling, if any, of the packagings and shipping boxes is required under the PHMSA regulations?
- 2) What labeling, if any, is required for the shrink-wrapped pallet?
- 3) If the pallet is labeled, what labeling requirements, if any, are then placed on the packages and overpack shipping boxes as a result of said pallet labeling?

Our position regarding these questions follows.



II. Discussion – Labeling of the Packaging and Shipping Boxes

Harris Products Group Al-Braze 1070 Flux, Part JW-10701/2

The Harris Products Group Al-Braze 1070 flux (hereinafter “Al-Braze flux”) is a powdered brazing flux. The imported Al-Braze flux is packaged in one-half pound jars for retail sale. Attached for your ready reference is a catalog page showing a representative sample jar of Al-Braze flux.

As outlined in Section One of the Material Safety Data Sheet (hereinafter “MSDS”), the chemical name of the Al-Braze flux is “Alkali Metal Halide Powder.”

Section Fourteen of the MSDS lists the proper shipping name as “Corrosive Solid, n.o.s.” This section of the MSDS states that the Al-Braze flux has a hazard class number and description of “8 (Corrosive),” the UN Identification Number of “UN 1759,” and the packing group as “II.”

Section Fourteen of the MSDS also states the Department of Transportation (hereinafter “DOT”) label required for the Al-Braze flux is “Corrosive.”

A copy of the MSDS for the Al-Braze flux is included for your ready reference.

Section 172.400(a) of the DOT regulations (49 CFR §172.400(a)) states in pertinent part:

Except as specified in §172.400a, each person who offers for transportation or transports a hazardous material in any of the following packages..., shall label the package...with labels specified for the material in the §172.101 table and in this subpart:

(1) A non-bulk package;

(5) An overpack...which contains a package for which labels are required...;

For products having a hazard class of “8,” the label required by Section 174.400(b) is “Corrosive.”



Consideration of the Individual Jars of Al-Braze Flux as Non-Bulk Packaging Requiring Labeling under 49 CFR §172.400(a)(1)

Section 171.8 of the DOT regulations (49 CFR §171.8) defines “non-bulk packaging” as:

...(P)ackaging which has:

- (1) A maximum capacity of 450 L (119 gallons) or less as a receptacle for a liquid;*
- (2) A maximum net mass of 400 kg (882 pounds) or less and a maximum capacity of 450 L (119 gallons) or less as a receptacle for a solid; or*
- (3) A water capacity of 454 kg (1000 pounds) or less as a receptacle for a gas...*

Section 171.8 of the DOT regulations further defines “packaging” as:

...(A) receptacle and any other components or materials necessary for the receptacle to perform its containment function in conformance with the minimum packaging requirements...

“Receptacle” is defined by Section 171.8 as “...a containment vessel for receiving and holding materials.”

The retail jar for the Al-Braze flux satisfies the definition of “packaging” in that the jar serves as the containment receptacle for the one-half pound quantity of corrosive flux.

Given that each of the one-half pound Al-Braze flux packaging falls under the maximum limits set-forth for the definition of non-bulk packaging, the subject goods would also satisfy the definition of “non-bulk packaging” and would **initially appear** to be subject to the labeling requirements of 49 CFR §172.400(a).



Consideration of the Twelve-Jar Box of Al-Braze Flux as an Overpack Requiring Labeling Under 49 CFR §172.400(a)(5)

Section 172.8 of the DOT regulations defines “overpack” as:

...(A)n enclosure that is used...to provide protection or convenience in handling of a package or to consolidate two or more packages...Examples of overpacks are one or more packages...placed in a protective outer packaging such as a box or crate.

Section 171.8 of the DOT regulations defines “package” as “... *packaging plus its contents.*”

As we have already established *supra* that the jar for the Al-Braze flux satisfies the definition of “packaging,” the jar containing the Al-Braze flux satisfies the definition of “package.”

Section 172.8 of the DOT regulations defines “Outer packaging” as:

...(T)he outermost enclosure of a composite or combination packaging together with any absorbent materials, cushioning and any other components necessary to contain and protect inner receptacles or inner packagings.

Section 171.8 of the DOT regulations defines “combination packagings” as:

...(A) combination of packaging, for transport purposes, consisting of one or more inner packagings secured in a non-bulk outer packaging.

“Inner packaging” is defined by Section 171.8 of the DOT regulations as “...*a packaging for which an outer packaging is required for transport...*”

The shipping box clearly satisfies the definition of an “overpack” given that the box provides protection of, and “convenience in handling,” the twelve individuals packaging jars of Al-Braze flux contained therein.

To summarize, the jars for the Al-Braze flux satisfy the definition of inner packaging, the jar containing the Al-Braze flux satisfies the definition of a package, and the twelve-jar box of Al-Braze flux satisfies the definition as an outer packaging. Therefore, the box containing the subject goods would also satisfy



the definition of an “overpack” and would **initially appear** to be subject to the labeling requirements of 49 CFR §172.400(a).

Applying the Labeling Exception of 49 CFR §172.400a(b) to the Individual Jars of Al-Braze Flux as Non-Bulk Packaging

Section 172.400a(b) of the DOT regulations (49 CFR §172.400a(b)) specifies that:

Certain exceptions to labeling requirements are provided for small quantities and limited quantities in applicable sections in part 173 of this subchapter.

Section 173 of the DOT regulations (49 CFR §173) provides for the general requirements for shipments and packagings of hazardous materials; Subpart D to Section 173 provides for various exceptions related to hazardous materials other than Class 1 and Class 7.

Section 173.154(a) of the DOT regulations (49 CFR §173.154(a)) allows for Class 8 hazardous materials exceptions “...*only if this section is referenced for the specific hazardous material in the §172.101 table...*”

The Table of Hazardous Materials and Special Provisions contained in Section 172.101 of the DOT regulations (49 CFR §172.101) provides for, among other things, “...*requirements...pertaining to labeling...*”

Column 8A of the table, as provided for by Section 172.101(i)(1) of the DOT regulations, “...*contains exceptions from some of the requirements of this subchapter...*”

Whereas the MSDS has established that the Al-Braze flux has a proper shipping name of “Corrosive Solids, n.o.s.” with an UN identification number of “UN 1759,” we must review the following section of the table found in Section 172.101 of the DOT regulations:



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(1) Sym- bols	Hazardous materials descrip- tions and proper shipping names	Hazard class or Di- vision	Identifica- tion Num- bers	PG	Label Codes	Special provi- sions (\$ 172.102)	(8)			(9)		(10) Vessel stow- age	
							Packaging (\$ 173.154)			Quantity limitations (see §§ 173.27 and 175.75)		Loca- tion	Other
							Excep- tions	Non- bulk	Bulk	Passenger aircraft/rail	Cargo air- craft only		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
G	Corrosive solids, n.o.s.	8	UN1759	I	8	1B7, 1P1, T6, TP33	None	211	242	1 kg	25 kg	B	.....
	.....			II	8	126, 1B8, 1P2, 1P4, T3, TP33	154	212	240	15 kg	50 kg	A	.....
	.....			III	8	128, 1B8, 1P3	154	213	240	25 kg	100 kg	A	.....

For goods under Packing Group II (as is the Al-Braze flux), the table of Section 172.101 identifies “154” under Column 8A. Given this notation, Section 172.101 of the DOT regulations authorizes the packaging exceptions of 49 CFR §173.154 for the subject product.

Section 173.154(b) of the DOT regulations (49 CFR §173.154(b)) outlines the exceptions permitted for limited quantities of Class 8 corrosive materials, specifically and in pertinent part:

Limited quantities of corrosive materials (Class 8) in Packing Group II and III are excepted from labeling requirements...and the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph...

As the Al-Braze flux is Packing Group II, the corresponding exceptions are found in Section 173.154(b)(1) of the DOT regulations (49 CFR §173.154(b)(1)), which states in pertinent part:

For corrosive materials in Packing Group II, inner packagings not over 1.0 L (0.3 gallon) net capacity each for liquids or not over 1.0 kg (2.2 pounds) net capacity each for solids...

Given that the one-half pound packagings of the Al-Braze flux are clearly under the 2.2 pound limit outlined in Section 173.154(b)(1), the imported jars of Al-Braze flux **are exempt from the hazardous materials labeling requirements** of Section 172 of the Department of Transportation regulations.



Applying the Labeling Exception of 49 CFR §172.400a(b) to the Twelve-Jar Box of Al-Braze Flux as an Overpack

As has already been outlined, Section 172.400(a)(5) of the DOT regulations requires the appropriate hazardous materials labeling for “(a)n *overpack...which contains a package for which labels are required...*” (Emphasis added).

It has been established that the individual jars of Al-Braze flux satisfies the definition of a “package” and that the box containing the twelve jars satisfies the definition of an “overpack.”

The critical regulatory labeling requirement of Section 174.400(a)(5) is that the overpack **must contain** packages “for which labels are required” in order for the overpack itself to be required to be labeled.

As the individual packages of Al-Braze flux are excepted from the labeling requirements of Section 174.400 by Section 173.154(b) of the DOT regulations, the overpack **does not** contain packages “for which labels are required.”

Therefore, the twelve-jar boxes of Al-Braze flux **are exempt from the hazardous materials labeling requirements** of Section 172 of the Department of Transportation regulations.

Harris Products Group Stay-Clean Liquid Flux, Part JW-SCLF32

The Harris Products Group Stay-Clean flux (hereinafter “Stay-Clean flux”) is a liquid brazing flux. The imported Stay-Clean flux is packaged in thirty-two ounce bottles for retail sale. Attached for your ready reference is a catalog page showing a representative sample bottle of the Stay-Clean flux.

As outlined in Section One of the MSDS the chemical name of the Stay-Clean flux is “Zinc Chloride/Ammonium Chloride Solution.”

Section Fourteen of the MSDS lists the proper shipping name as “Corrosive Liquid, n.o.s.” This section of the MSDS states that the Stay-Clean flux has a hazard class number and description of “8 (Corrosive),” the UN Identification Number of “UN 1760,” and the packing group as “III.”



Section Fourteen of the MSDS also states the Department of Transportation (hereinafter “DOT”) label required for the Stay-Clean flux is “Corrosive.”

A copy of the MSDS for the Stay-Clean flux is included for your ready reference.

Section 172.400(a) of the DOT regulations (49 CFR §172.400(a)) states in pertinent part:

Except as specified in §172.400a, each person who offers for transportation or transports a hazardous material in any of the following packages..., shall label the package...with labels specified for the material in the §172.101 table and in this subpart:

(1) A non-bulk package;

(5) An overpack...which contains a package for which labels are required...;

For products having a hazard class of “8,” the label required by Section 174.400(b) is “Corrosive.”

Consideration of the Individual Bottles of Stay-Clean Flux as Non-Bulk Packaging Requiring Labeling under 49 CFR §172.400(a)(1)

Section 171.8 of the DOT regulations (49 CFR §171.8) defines “non-bulk packaging” as:

...(P)ackaging which has:

(1) A maximum capacity of 450 L (119 gallons) or less as a receptacle for a liquid;

(2) A maximum net mass of 400 kg (882 pounds) or less and a maximum capacity of 450 L (119 gallons) or less as a receptacle for a solid; or

(3) A water capacity of 454 kg (1000 pounds) or less as a receptacle for a gas...



Section 171.8 of the DOT regulations further defines “packaging” as:

...(A) receptacle and any other components or materials necessary for the receptacle to perform its containment function in conformance with the minimum packaging requirements...

“Receptacle” is defined by Section 171.8 as “...a containment vessel for receiving and holding materials.”

The retail bottle for the Stay-Clean flux satisfies the definition of “packaging” in that the bottle serves as the containment receptacle for the thirty-two ounce quantity of liquid corrosive flux.

Given that each of the thirty-two ounce packaging falls under the maximum limits set-forth for the definition of non-bulk packaging, the subject goods would also satisfy the definition of “non-bulk packaging” and would **initially appear** to be subject to the labeling requirements of 49 CFR §172.400(a).

Consideration of the Twelve-Bottle Box of Stay-Clean Flux as an Overpack Requiring Labeling Under 49 CFR §172.400(a)(5)

Section 172.8 of the DOT regulations defines “overpack” as:

...(A)n enclosure that is used...to provide protection or convenience in handling of a package or to consolidate two or more packages...Examples of overpacks are one or more packages...placed in a protective outer packaging such as a box or crate.

Section 171.8 of the DOT regulations defines “package” as “... packaging plus its contents.”

As we have already established *supra* that the bottle for the Stay-Clean flux satisfies the definition of “packaging,” the bottle containing the Stay-Clean flux satisfies the definition of “package.”



Section 172.8 of the DOT regulations defines “Outer packaging” as:

... (T)he outermost enclosure of a composite or combination packaging together with any absorbent materials, cushioning and any other components necessary to contain and protect inner receptacles or inner packagings.

Section 171.8 of the DOT regulations defines “combination packagings” as:

... (A) combination of packaging, for transport purposes, consisting of one or more inner packagings secured in a non-bulk outer packaging.

“Inner packaging” is defined by Section 171.8 of the DOT regulations as “...a packaging for which an outer packaging is required for transport...”

The shipping box clearly satisfies the definition of an “overpack” given that the box provides protection of, and “convenience in handling,” the twelve individuals packaging bottles of Stay-Clean flux contained therein.

To summarize, the bottles for the Stay-Clean flux satisfy the definition of inner packaging, the bottle containing the Stay-Clean flux satisfies the definition of a package, and the twelve-bottle box of Stay-Clean flux satisfies the definition as an outer packaging. Therefore, the box containing the subject goods would also satisfy the definition of an “overpack” and would **initially appear** to be subject to the labeling requirements of 49 CFR §172.400(a).

Applying the Labeling Exception of 49 CFR §172.400a(b) to the Individual Bottles of Stay-Clean Flux as Non-Bulk Packaging

Section 172.400a(b) of the DOT regulations (49 CFR §172.400a(b)) specifies that:

Certain exceptions to labeling requirements are provided for small quantities and limited quantities in applicable sections in part 173 of this subchapter.



Section 173 of the DOT regulations (49 CFR §173) provides for the general requirements for shipments and packagings of hazardous materials; Subpart D to Section 173 provides for various exceptions related to hazardous materials other than Class 1 and Class 7.

Section 173.154(a) of the DOT regulations (49 CFR §173.154(a)) allows for Class 8 hazardous materials exceptions “...only if this section is referenced for the specific hazardous material in the §172.101 table...”

The Table of Hazardous Materials and Special Provisions contained in Section 172.101 of the DOT regulations (49 CFR §172.101) provides for, among other things, “...requirements...pertaining to labeling...”

Column 8A of the table, as provided for by Section 172.101(i)(1) of the DOT regulations, “...contains exceptions from some of the requirements of this subchapter...”

Whereas the MSDS has established that the Stay-Clean flux has a proper shipping name of “Corrosive Liquid, n.o.s.” with an UN identification number of “UN 1760,” we must review the following section of the table found in Section 172.101 of the DOT regulations:

Sym- bols	Hazardous materials descrip- tions and proper shipping names	Hazard class or Di- vision	Identifi- cation Num- bers	PG	Label Codes	Special provi- sions (§ 172.102)	(§)			(§)		(10)	
							Packaging (§ 173.177)			Quantity limitations (see §§ 173.27 and 173.75)		Vessel stow- age	
							Excep- tions (8A)	Non- bulk (8B)	Bulk (8C)	Passenger aircraft (9A)	Cargo air- craft only (9B)	Loca- tion (10A)	Other (10B)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
G	Corrosive liquids, n.o.s.	8	UN1760	II	8	A5, A7, S10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	B	40
	.....				8	S4, S24, T11, TP2, TP27	154	202	242	1 L	30 L	B	40
	.....				8	IB3, T7, TP1, TP2	154	203	241	5 L	60 L	A	40

For goods under Packing Group III (as is the Stay-Clean flux), the table of Section 172.101 identifies “154” under Column 8A. Given this notation, Section 172.101 of the DOT regulations authorizes the packaging exceptions of 49 CFR §173.154 for the subject product.



Section 173.154(b) of the DOT regulations (49 CFR §173.154(b)) outlines the exceptions permitted for limited quantities of Class 8 corrosive materials, specifically and in pertinent part:

Limited quantities of corrosive materials (Class 8) in Packing Group II and III are excepted from labeling requirements...and the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph...

As the Stay-Clean flux is Packing Group III, the corresponding exceptions are found in Section 173.154(b)(2) of the DOT regulations (49 CFR §173.154(b)(2)), which states in pertinent part:

For corrosive materials in Packing Group III, inner packagings not over 5.0 L (1.3 gallon) net capacity each for liquids or not over 5.0 kg (11 pounds) net capacity each for solids...

Given that the thirty-two ounce packagings of the Stay-Clean flux are clearly under the 1.3 gallon limit outlined in Section 173.154(b)(2), the imported bottles of Stay-Clean flux **are exempt from the hazardous materials labeling requirements** of Section 172 of the Department of Transportation regulations.

Applying the Labeling Exception of 49 CFR §172.400a(b) to the Twelve-Bottle Box of Stay-Clean Flux as an Overpack

As has already been outlined, Section 172.400(a)(5) of the DOT regulations requires the appropriate hazardous materials labeling for “(a)n overpack...*which contains a package for which labels are required...*” (Emphasis added).

It has been established that the individual bottles of Stay-Clean flux satisfies the definition of a “package” and that the box containing the twelve bottles satisfies the definition of an “overpack.”

The critical regulatory labeling requirement of Section 174.400(a)(5) is that the overpack **must contain** packages “for which labels are required” in order for the overpack itself to be required to be labeled.



As the individual packages of Stay-Clean flux are excepted from the labeling requirements of Section 174.400 by Section 173.154(b) of the DOT regulations, the overpack **does not** contain packages “for which labels are required.”

Therefore, the twelve-bottle boxes of Stay-Clean flux **are exempt from the hazardous materials labeling requirements** of Section 172 of the Department of Transportation regulations.

III. Discussion – Labeling of the Shrink-Wrapped Pallet

The next question involves the labeling of the shrink-wrapped pallet which contains several shipping boxes of limited quantities of goods, such as those described in Section II *supra*.

Section 172.400(a) of the DOT regulations (49 CFR §172.400(a)) states in pertinent part:

Except as specified in §172.400a, each person who offers for transportation or transports a hazardous material in any of the following packages..., shall label the package...with labels specified for the material in the §172.101 table and in this subpart:

(5) An overpack...which contains a package for which labels are required...;

Section 172.8 of the DOT regulations defines “overpack” as:

...(A)n enclosure that is used...to provide protection or convenience in handling of a package or to consolidate two or more packages...Examples of overpacks are one or more packages...placed in a protective outer packaging such as a box or crate.

Section 171.8 of the DOT regulations defines “package” as “... packaging plus its contents.”



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As we have already established *supra* that the jar for the Al-Braze flux and the bottle for the Stay-Clean flux satisfy the definition of “packaging,” the corresponding jar and bottle containing the products satisfy the definition of “package.”

Section 172.8 of the DOT regulations defines “Outer packaging” as:

...(T)he outermost enclosure of a composite or combination packaging together with any absorbent materials, cushioning and any other components necessary to contain and protect inner receptacles or inner packagings.

Section 171.8 of the DOT regulations defines “combination packagings” as:

...(A) combination of packaging, for transport purposes, consisting of one or more inner packagings secured in a non-bulk outer packaging.

“Inner packaging” is defined by Section 171.8 of the DOT regulations as “...a packaging for which an outer packaging is required for transport...”

The shrink-wrapped pallet clearly satisfies the definition of an “overpack” given that the shrink-wrap and the pallet provides protection of, and “convenience in handling,” the shipping boxes containing the individual packaging jars of Al-Braze flux and the individual packaging bottles of Stay-Clean flux contained therein.

As has already been outlined, Section 172.400(a)(5) of the DOT regulations requires the appropriate hazardous materials labeling for “(a)n overpack...**which contains a package for which labels are required...**” (Emphasis added).

It has been established that the individual jars of Al-Braze flux and the individual bottles of Stay-Clean flux satisfies the definition of a “package,” the box containing the packages satisfies the definition of an “overpack,” and the shrink-wrapped pallet containing the shipping boxes also satisfies the definition of an “overpack.”

The critical regulatory labeling requirement of Section 174.400(a)(5) is that the overpack **must contain** packages “for which labels are required” in order for the overpack itself to be required to be labeled.



As the individual packages of Al-Braze flux and Stay-Clean flux are excepted from the labeling requirements of Section 174.400 by Section 173.154(b) of the DOT regulations, the overpack, i.e. the shrink-wrapped pallet, **does not** contain packages “for which labels are required.”

Therefore, the shrink-wrapped pallet containing the twelve-jar boxes of Al-Braze flux and the twelve-bottle boxes of Stay-Clean flux **are exempt from the hazardous materials labeling requirements** of Section 172 of the Department of Transportation regulations.

IV. Discussion – Labeling of Boxes if Pallet is Labeled

The final question involves what, if any, labeling is required on the packagings and overpack shipping boxes if the shrink-wrapped pallet overpack does contain labeling, e.g. “Corrosive” label.

Because the goods originate in Mexico, the packagings, packages, and overpacks, including the shrink-wrapped pallet, must conform to the hazardous materials labeling requirements for Mexico; these labeling requirements may be different than that of the PHMSA.

For example, the shrink-wrapped pallet may be required contain the appropriate “Corrosive” labeling for purposes of transportation in Mexico even though this labeling is not required by the PHMSA regulations.¹

Section 5.1.2.1 of the “United Nations Recommendations on the Transportation of Dangerous Goods” states, in pertinent part:

An overpack shall be...labeled, as required for packages by Chapter 5.2, for each item of dangerous goods contained in the overpack unless marking and labeling representative of all dangerous goods in the overpack are visible.

¹ 49 CFR §172.401(a) states that a package may not bear a label required by the PHMSA regulations unless: 1) The package contains a material that is a hazardous material; and 2) The label represents a hazard of the hazardous material in the package. As was established in Section II, the subject Al-Braze flux and Stay-Clean flux are “hazardous materials.” As such, any labeling that may be placed on the packages or overpacks, including the shrink-wrapped pallet, said labeling being excepted by regulation, would not be in violation of 49 CFR §172.401(a).



The controlling requirements for the labeling of hazardous materials in the United States are found in the PHMSA regulations and not the UN Recommendations. As the subject packages and overpacks, including the shrink-wrapped pallet, are exempt from labeling under the PHMSA regulations, there is no labeling requirement placed on the packages or shipping box overpacks if the overpack pallet is labeled in accordance with the UN Recommendations.

To summarize, if the shrink-wrapped overpack is labeled in accordance with the UN Requirements, the packaging and shipping boxes of the limited quantities of the subject goods are still exempt from labeling by regulation for the reasons reviewed *supra*.

III. Conclusion

Based upon our understanding of the PHMSA requirements and a plain reading of the corresponding regulations, our position for each point is as follows:

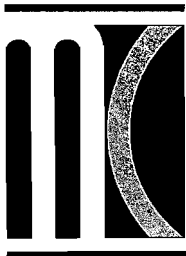
1) What labeling, if any, of the packagings and shipping boxes is required under the PHMSA regulations?

For reasons reviewed *supra*, the jars of Al-Braze powdered flux and bottles of Stay-Clean liquid flux are exempt from the labeling requirements of Section 172 of the Department of Transportation regulations.

For reasons reviewed *supra*, the overpack boxes of the Al-Braze powdered flux and the overpack boxes of the Stay-Clean liquid flux are exempt from the labeling requirements of Section 172 of the Department of Transportation regulations.

2) What labeling, if any, is required for the shrink-wrapped pallet?

For reasons reviewed *supra*, the overpack shrink-wrapped pallet containing the boxes of the Al-Braze powdered flux and the overpack boxes of the Stay-Clean liquid flux is exempt from the labeling requirements of Section 172 of the Department of Transportation regulations.



MICHAEL
CAPUZZI

TRADE LAW

3) If the pallet is labeled, what labeling requirements, if any, are then placed on the packages and overpack shipping boxes as a result of said pallet labeling?

For reasons reviewed *supra*, the jars of Al-Braze powdered flux and bottles of Stay-Clean liquid flux and the overpack boxes containing the same remain exempt from the labeling requirements of the Department of Transportation regulations even when the overpack shrink-wrapped pallet is labeled, for example, in accordance with the UN Recommendations.

Please contact us should you have any questions or require any additional information.

Thank you for your cooperation and assistance with the expedited response to this request.

Very sincerely,

Michael A. Capuzzi, Esq.
Counsel for Tacna International

Attachments

The Law Offices of Michael A. Capuzzi
6314 North Wyndwood Drive Crystal Lake, IL 60014
Tel: 815-479-5260 Fax: 815-479-1904



ALUMINUM BRAZING

AL-BRAZE 1070

A superior brazing alloy for the joining of aluminum to aluminum. Al-Braze is free-flowing with unequaled capillary attraction, ductility and penetration. Not recommended for brazing Aluminum directly to non-Aluminum alloys as the joint may be brittle.

Procedure:

- Clean the braze area
- Remove all plating or anodized finish
- Heat the wire and dip into dry flux for extra coverage
- Mix powdered flux with water to form a paste
- Use a reducing flame
- Keep torch in constant motion
- Melt the alloy with the heat from the work piece not with the torch

Features:

- Tensile strength - Up to 35,000 PSI
- Solidus - 1070°F / 577°C
- Liquidus - 1080°F / 582°C
- Excellent corrosion resistance
- Specific gravity - 2.66

USA
MADE IN



Description	Chemical Composition	Solidus	Liquidus	Typical Application
Al-Braze 1070 Aluminum Brazing Kit	88% Al 12% Si	1070° F 577° C	1080° F 582° C	Superior brazing alloy for joining aluminum to aluminum. Excellent capillary attraction.

PART NO.	SIZE
1070K	ALBRAZE 1070 KIT

ALCOR

A very easy to use aluminum alloy with non-corrosive flux inside the wire; no external flux is required with this product. Designed for the repair of heat exchangers, air conditioners, aluminum alloy condensers and other applications. Very good fluidity with good capillary attraction. Post-braze cleaning unnecessary. Better than tin-zinc and aluminum silicon alloys for aluminum coil repair.

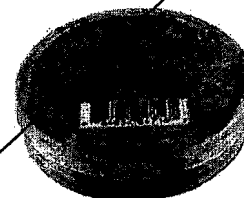
Procedure:

- Clean the surface of the aluminum to be joined
- Use a stainless steel brush
- Heat the surface evenly, apply ALCOR

Features:

- Tensile strength - Up to 35,000 psi
- Melts at 824°F / 440°C

USA
MADE IN



Description	Chemical Composition	Solidus	Liquidus	Typical Application
Arcor Flux-Cored Aluminum Alloy	Zn Al	824° F 440° C	824° F 440° C	A new approach to joining aluminum. A low temperature, free flowing, flux-cored solder for aluminum joining or repair.

PART NO.	SIZE
AL200RC	ALCOR-2MM DIA. - COIL

CORAL

Flux cored aluminum torch alloy which is able to produce either thin flowing or bead forming characteristics. Aluminum to aluminum; Not recommended for brazing aluminum directly to non-aluminum alloys.

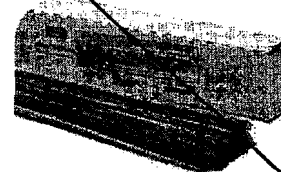
CORAL is a tubular aluminum rod with an extremely active flux formulation inside the tube. The ratio of the flux to the filler material is precisely calibrated, assuring versatile performance. By adjustment of the temperature of the torch flame, it can be applied out-of-position with absolute control.

Procedure:

- Clean the braze area
- Remove all plating or anodized finish
- Leave a gap of 1/16" to 1/8"
- Bevel 60° to 70° for butt joints or cracks
- It is not necessary to melt the base metal
- Use a carburizing flame
- Keep the flame 1" to 3" from the surface
- Touch to the braze area under the flame until the filler metal flows
- Deposit small amounts of alloy & allow it to flow out on the braze area
- For build up work, reduce the heat play the flame on the filler rod above the workpiece
- Melt drops of the CORAL onto the workpiece and a stiff brush
- For greater flowability, use Al-Braze flux
- Remove the flux residue with warm water
- Crimp the end of the rod after use to seal in flux

Features:

- Tensile strength - Up to 30,000 PSI
- Solidus - 1055°F / 568°C
- Liquidus - 1155°F / 623°C
- Good color match (will darken if anodized)
- Good corrosion resistance
- Can be applied out-of-position



PART NO.	SIZE
CORAL60	CORAL 1/8" - 3# PKG



MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards. This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard (29 CFR 1910.1200). Other government regulations must be reviewed for applicability to these products.

WARNING: PRODUCT COMPONENTS PRESENT HEALTH AND SAFETY HAZARDS. READ AND UNDERSTAND THIS MATERIAL SAFETY DATA SHEET (M.S.D.S.). ALSO, FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES. This product may contain Chromium and/or Nickel which are listed by OSHA, NTP, or IARC as being a carcinogen or potential carcinogen. Use of this product may expose you or others to fumes and gases at levels exceeding those established by the American Conference of Governmental Industrial Hygienists (ACGIH) or the Occupational Safety and Health Administration (OSHA). The information contained herein relates only to the specific product. If the product is combined with other materials, all component properties must be considered. **BE SURE TO CONSULT THE LATEST VERSION OF THE MSDS. MATERIAL SAFETY DATA SHEETS ARE AVAILABLE FROM HARRIS Products Group.** salesinfo@jwharris.com 513-754-2000 www.harrisproductsgroup.com

STATEMENT OF LIABILITY-DISCLAIMER

To the best of the Harris Products Group knowledge, the information and recommendations contained in this publication are reliable and accurate as of the date prepared. However, accuracy, suitability, or completeness are not guaranteed, and no warranty, guarantee, or representation, expressed or implied, is made by Harris Products Group as to the absolute correctness or sufficiency of any representation contained in this and other publications; Harris Products Group assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this and other publications, or that other or additional measures may not be required under particular or exceptional conditions or circumstances. Data may be changed from time to time.

PART I *What is the material and what do I need to know in an emergency?*

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED):	HARRIS 10, AL-BRAZE 1070, AL-BRAZE EC FLUX
CHEMICAL NAME/CLASS:	Alkali Metal Halide Powder
SYNONYMS:	ALUMINUM Brazing and Welding Flux
PRODUCT USE:	Metal-Working Operations
DOCUMENT NUMBER:	0133
SUPPLIER/MANUFACTURER'S NAME:	HARRIS PRODUCTS GROUP
ADDRESS:	4501 Quality Place, Mason, Ohio 45040
EMERGENCY PHONE:	CHEMTREC: 1-800-424-9300
BUSINESS PHONE:	1-513-754-2000
DATE OF PREPARATION:	July 12, 2007

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	% w/w	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV mg/m ³	STEL mg/m ³	PEL mg/m ³	STEL mg/m ³	IDLH mg/m ³	
Alkali Metal Chlorides: Lithium Chloride Potassium Chloride Sodium Chloride	7447-41-8 7447-40-7 7647-14-5	75-90	NE	NE	NE	NE	NE	NE
Lithium Fluoride	7789-24-4	4-15	2.5, A4 (Not Classifiable as a Human Carcinogen)	NE	2.5	NE	250	NIOSH REL: 2.5 DFG MAK: 2.5 (Total respirable dust fraction)
Zinc Chloride (exposure limits are for Zinc Chloride fume)	7646-85-7	8-20	1	2	1	2 (vacated 1989 PEL)	50	NIOSH REL: TWA = 1 STEL = 2 Carcinogen: EPA-D

ALUMINUM FLUXES

EFFECTIVE DATE: June 19, 2003

NE = Not Established. NIC = Notice of Intended Change mppcf = Millions of Particles per Cubic Foot See Section 16 for Definitions of Terms Used.
 NOTE (1): The ACGIH has an established exposure limit for Welding Fumes, Not Otherwise Classified. The Threshold Limit Value is 5 mg/m³. NIOSH classifies welding fumes as carcinogens. Single values shown are maximum, unless otherwise noted.
 NOTE (2): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: These products consist of odorless white or pink powers (Al-braze 1070 & EC is white) (HARRIS 10 is pink). This product is neither flammable nor reactive under normal circumstances. If involved in a fire, the components of this product can decompose to release corrosive hydrogen fluoride. This product and its decomposition products can severely irritate the skin, eyes, and any other contaminated tissue. Emergency responders must wear the proper personal protective equipment suitable for the situation to which they are responding.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE:

The most significant routes of over-exposure for this product are by contact with skin, eye contact, or inhalation of this product.

INHALATION: If this product is inhaled, it may irritate and burn the nose, throat, and respiratory system. Symptoms of inhalation over-exposure may include coughing, sneezing, and difficulty breathing. Inhalation over-exposure to Zinc Chloride fumes can cause metal fume fever. Severe inhalation over-exposure to Zinc Chloride (a component of this product) can cause life-threatening lung injury, such as pulmonary edema and pneumonitis.

CONTACT WITH SKIN or EYES: Depending on the duration and concentration of over-exposure, skin contact with this product can severely irritate the skin. Repeated or prolonged skin over-exposure to this product may result in dermatitis (red, dry, itchy skin). Depending on the duration and concentration of over-exposure, eye contact with this product may irritate or burn the eyes. Eye over-exposure can cause tearing and redness.

SKIN ABSORPTION: Hydrogen fluoride (a possible decomposition product) is extremely corrosive and a poison by all routes of entry. Hydrogen fluoride can penetrate the skin and produce burns which may not be immediately painful or visible; the burns impact the lower layers of skin and bone tissue. Hydrogen fluoride exposures involving 20 percent of the body or more can be fatal through systemic fluoride poisoning.



INGESTION: Ingestion is not anticipated to be a likely route of occupational exposure for this product. If this product is swallowed (especially in large amounts), it may irritate the mouth, throat, and other tissues of the digestive system. Initial symptoms may include nausea, vomiting, burning sensation in the esophagus and stomach, blurred vision, ringing in the ears, weakness, staggering, and tremor. Later symptoms may include abdominal pain, bloody diarrhea, convulsions, high blood pressure, and coma. Ingestion of only a few grams of Zinc Chloride (a component of this product) may be fatal. Chronic ingestion over-exposure may cause mottling of tooth enamel, gastrointestinal discomfort, weakness, drowsiness, tremors, loss of appetite, slurred speech, vomiting, diarrhea, and hardening or abnormal denseness of the bones. Kidney function can be impaired by lithium salts. Severe ingestion over-exposure may be fatal.

INJECTION: Though not anticipated to be a likely route of occupational exposure for this product, injection of this product (via punctures or lacerations by a contaminated object) may cause local reddening, tissue swelling, and discomfort in addition to the wound.

HEALTH EFFECTS OR RISKS FROM OVER-EXPOSURE: An Explanation in Lay Terms. Symptoms associated with over-exposure to this product are as follows:

ACUTE: Symptoms of inhalation over-exposure may include coughing, sneezing, and difficulty breathing. Severe inhalation over-exposure to Zinc Chloride (a component of this product) can cause life-threatening lung injury, such as pulmonary edema and pneumonitis. Depending on the duration and concentration of over-exposure, skin contact with this product can severely irritate the skin. Depending on the duration and concentration of over-exposure, eye contact with this product can irritate or burn the eyes. Initial symptoms after ingesting large amounts of this product may include nausea, vomiting, burning sensation in the esophagus and stomach, blurred vision, ringing in the ears, weakness, staggering, and tremor. Severe ingestion over-exposure may be fatal.

CHRONIC: Repeated or prolonged skin over-exposure to this product may result in dermatitis (red, dry, itchy skin). Chronic ingestion over-exposure may cause mottling of tooth enamel, gastrointestinal discomfort, weakness, drowsiness, tremors, loss of appetite, slurred speech, vomiting, diarrhea, and hardening or abnormal denseness of the bones. Chronic

HAZARDOUS MATERIAL INFORMATION SYSTEM			
HEALTH		(BLUE)	2
FLAMMABILITY		(RED)	0
REACTIVITY		(YELLOW)	0
PROTECTIVE EQUIPMENT			X
EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8
For routine industrial applications			

over-exposure to hydrogen fluoride (a possible decomposition product) can cause fluorosis (weakening and degeneration of bone structure and possible heart, nerve, and intestinal problems). Refer to Section 11 (Toxicological Information) for additional information regarding this product and its components.

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

SKIN EXPOSURE: If this product or its decomposition products irritate the skin, begin decontamination with running water. Minimum flushing is for 15 minutes. Do not interrupt flushing. If necessary, apply calcium gluconate gel (2.5% concentration) after flushing is complete. See Section 11 (Toxicological Information, Recommendations to Physicians) for more information on the use of calcium gluconate gel. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek medical attention if any adverse reaction occurs.

EYE EXPOSURE: If this product enters the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Do not interrupt flushing. Victim must seek immediate medical attention.

INHALATION: If this product is inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Victim must seek medical attention if any adverse reaction occurs.

INGESTION: If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. Do not induce vomiting, unless directed by medical personnel. Have victim rinse mouth with water, if conscious. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration.

Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take copy of label and MSDS to health professional with victim.

5. FIRE-FIGHTING MEASURES

FLASH POINT: Not flammable.

AUTOIGNITION TEMPERATURE: Not applicable.

FLAMMABLE LIMITS (in air by volume, %): Lower (LEL): Not applicable.
Upper (UEL): Not applicable

FIRE EXTINGUISHING MATERIALS: This material is not flammable. Use extinguishing media appropriate for surrounding fire.

Water Spray: YES (for cooling)

Carbon Dioxide: YES

Halon: YES

Foam: YES

Dry Chemical: YES

Other: Any "ABC" Class.

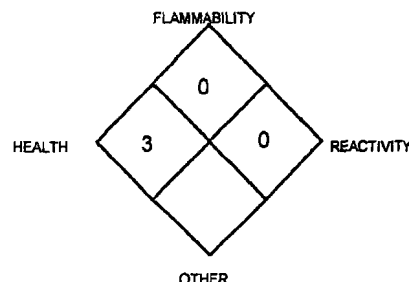
UNUSUAL FIRE AND EXPLOSION HAZARDS: During a fire, irritating and toxic gases (e.g., hydrogen fluoride, alkali metal oxides, fluorine, and chlorine) may be generated.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: N/A

NFPA RATING



6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area and protect people.

In the event of an incidental release of this product, personnel should wear gloves, safety glasses (or goggles), and face shield during clean up. In the event of a non-incidental release, minimum Personal Protective Equipment should be **Level B: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard-hat, and Self-Contained Breathing Apparatus**. Sweep up spilled powder carefully, avoiding the generation of airborne dust. Decontaminate the area thoroughly. Place all spill residues in a suitable container and seal. Dispose of in accordance with Federal, State, and local hazardous waste disposal regulations (see Section 13, Disposal Considerations).

PART III *How can I prevent hazardous situations from occurring*

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat or drink while handling this material. Avoid generating airborne dust of this product. Remove contaminated clothing immediately.

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Empty containers may contain residual powder; therefore, empty containers should be handled with care.

Store this product in a cool, dry location, away from direct sunlight, sources of intense heat. Store away from incompatible chemicals (see Section 10, Stability and Reactivity). Material should be stored in secondary containers or in a diked area, as appropriate. Storage and use areas should be covered with impervious materials. Keep container tightly closed when not in use. Inspect all incoming containers before storage to ensure they are properly labeled and not damaged.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Decontaminate equipment using soapy water before maintenance begins. Collect all rinsates and dispose of according to applicable Federal, State, or local procedures.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in Section 2 (Composition and Information on Ingredients). Exhaust directly to the outside, taking necessary precautions for environmental protection. Prudent practice is to ensure eyewash/safety shower stations are available near areas where this product is used.

RESPIRATORY PROTECTION: Maintain airborne contaminant concentrations below guidelines listed in Section 2 (Composition and Information on Ingredients) if applicable. If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134 or applicable State regulations. Use supplied air respiration protection if oxygen levels are below 19.5% or are unknown.

EYE PROTECTION: Safety glasses or goggles.

HAND PROTECTION: Wear natural rubber, neoprene, or nitrile rubber gloves for routine industrial use.

BODY PROTECTION: None needed for normal circumstances of use. Use body protection appropriate for task (i.e., apron, coveralls, and chemical resistant boots).

9. PHYSICAL and CHEMICAL PROPERTIES

RELATIVE VAPOR DENSITY (air = 1): Not applicable.

SPECIFIC GRAVITY (water = 1): Not applicable.

SOLUBILITY IN WATER: Moderately soluble.

VAPOR PRESSURE, mm Hg @ 24°C: Not established.

ODOR THRESHOLD: Not applicable.

COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not established.

APPEARANCE AND COLOR: HARRIS 10 is an odorless, pink powder. Al-braze EC and Al-Braze 1070 is an odorless, white powder.

HOW TO DETECT THIS SUBSTANCE (warning properties): The appearance may act as a distinguishing characteristic of this product.

10. STABILITY and REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: Hydrogen fluoride, alkali metal oxides, fluorine, and chlorine.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong oxidizers, strong acids, reactive interhalogens.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Extreme temperatures, moisture, incompatible materials.

PART IV *Is there any other useful information about this material?*

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: Human toxicological data are available for the components of this product listed in Section 2 (Composition and Information on Ingredients). Other data for animals are available but are not presented in this Material Safety Data Sheet.

LITHIUM CHLORIDE:

DNA Inhibition (HeLa cell, human) = 70 mmol/L

LDLo (oral, human) = 200 mg/kg/ 3 days

TDLo (oral, human) = 243 mg/kg/ 13 days; central nervous system, gastrointestinal effects

POTASSIUM CHLORIDE:

LDLo (oral, infant) = 938 mg/kg/ 2 days

POTASSIUM CHLORIDE (continued):

TDLo (oral, woman) = 60 mg/kg/ days; gastrointestinal tract, blood effects

LDLo (oral, man) = 20 mg/kg; cardiovascular, gastrointestinal tract, blood effects

SODIUM CHLORIDE:

DNA Inhibition (fibroblast, human) = 125 mmol/L

SODIUM CHLORIDE (continued):

TDLo (intraplacental, woman) = 27 mg/kg/ 15 weeks pregnant; reproductive effects

ZINC CHLORIDE:

DNA Inhibition System (human, lymphocyte) = 0.360 mmol/L

TCLo (inhalation, man) = 4800 mg/m³/ 30 minutes; pulmonary effects

TCLo (inhalation, human) = 4800 mg/m³/ 3 hours

SUSPECTED CANCER AGENT: The components of this product are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, and CAL/OSHA, and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: This product may severely irritate or burn contaminated tissue.

SENSITIZATION TO THE PRODUCT: No component of this product is known to be a sensitizer with prolonged or repeated use.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product on the human reproductive system.

Mutagenicity: This product is not reported to produce mutagenic effects in humans. Human mutation data are available for Lithium Chloride and Zinc Chloride (components of this product); these data were obtained during clinical studies on specific human tissues exposed to high doses of these compounds. Animal mutation data are available for Potassium Chloride Sodium Chloride (a component of this product); these data were obtained during clinical studies on specific animal tissues exposed to high doses of these compounds.

Embryotoxicity: This product is not reported to produce embryotoxic effects in humans.

Teratogenicity: This product is not reported to cause teratogenic effects in humans. Clinical studies on test animals exposed to relatively high doses of Lithium Chloride, Sodium Chloride, and Zinc Chloride (components of this product) indicate teratogenic effects.

Reproductive Toxicity: This product is not reported to cause adverse reproductive effects in humans. Clinical studies on test animals exposed to relatively high doses of Lithium Chloride, Sodium Chloride, and Zinc Chloride (components of this product) indicate adverse reproductive effects.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

BIOLOGICAL EXPOSURE INDICES: Currently, there are Biological Exposure Indices (BEIs) associated with Lithium Fluoride (a component of this product, as a fluoride).

BIOLOGICAL EXPOSURE INDICES (BEIs) for components of this product are as follows:		
CHEMICAL DETERMINANT	SAMPLING TIME	BEI
FLUORIDES Fluorides in urine	Prior to shift	3 mg/g creatinine
	End of shift	10 mg/g creatinine

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Dermatitis, other skin disorders, and respiratory conditions may be aggravated by over-exposure to this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate over-exposure. In the event of over-exposure to this product, all personnel providing treatment must be gloved. If there is a possibility of contamination by hydrogen fluoride (a decomposition product), treatment recommendations for contamination are as follows:

Skin Contact: After 15 minute water flush (if flush has not yet been done), apply calcium gluconate gel (2.5% concentration) until pain has subsided, but not longer than 30 minutes. If pain lasts longer than 15 minutes, proceed with calcium gluconate injections.

Eye Contact: After 15 minutes water flush (if flush has not been done), flush eyes with 1% calcium gluconate gel in normal, sterile saline.

Inhalation: Provide 100% oxygen, followed by inhalation of a mist containing 2.5% calcium gluconate in saline solution. Watch for pulmonary edema.

Ingestion: Gastric lavage with lime water or milk.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: The components of this product will decompose under normal environmental conditions. Additional environmental data are available as follows:

LITHIUM CHLORIDE: Log Kow = -2.66; Water solubility = 1 g/ 1.3 mL (cold water), 1 g/ 0.8 mL (boiling water).

LITHIUM FLUORIDE: Water solubility = 0.13 g/ 100 mL (25°C).

POTASSIUM CHLORIDE: Water solubility = 34.2g/ 100 mL (20°C), 1 g/ 2.8 mL, 1 g/1.8 mL (boiling).

SODIUM CHLORIDE: Water solubility = 37 g/ 100 mL (0°C); Log Kow = -3.0.

ZINC CHLORIDE: Water solubility: 432 g/ 100 mL (25°C), 614 g/ 100 mL (100°C). Zinc can persist indefinitely as a cation. Radioactive zinc (⁶⁵Zn) has been found to concentrate in plants and milk. Acute Hazard Level Threshold: For vegetables and other crops - 750 ppm (Zn).

EFFECT OF MATERIAL ON PLANTS or ANIMALS: This product can be harmful to plant and animal life. Specific data on test animals are available, but are not presented in this Material Safety Data Sheet.

EFFECT OF CHEMICAL ON AQUATIC LIFE: Large releases of this product may be harmful or fatal to exposed aquatic life.

ZINC CHLORIDE:

Acute Hazard Level Threshold: For fish - 0.1 ppm (Zn)

Odorless zinc poisoning causes inflamed gills in fish.

Laboratory studies of Atlantic salmon, rainbow trout, carp, and goldfish have shown avoidance reactions by these fish to zinc in water.

Radioactive zinc (⁶⁵Zn) has been found to concentrate in aquatic life.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

EPA WASTE NUMBER: Not applicable.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS (Per 49 CFR 172.101) BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME: Corrosive Solid, n.o.s.
(Zinc chloride, Lithium chloride - anhydrous mixture)

HAZARD CLASS NUMBER and DESCRIPTION: 8 (Corrosive)

UN IDENTIFICATION NUMBER: UN 1759

PACKING GROUP: II

DOT LABEL(S) REQUIRED: CORROSIVE

NOTE: Exception for Class 8 for net capacity of 2.2 pounds or less on inner packaging. Refer to 49 CFR 173.154 for additional information.

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 154

MARINE POLLUTANT: The components of this product are not designated by the Department of Transportation to be Marine Pollutants (49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Refer to above information for Canadian shipments.

15. REGULATORY INFORMATION

SARA REPORTING REQUIREMENTS: The components of this product are subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

COMPONENT	SARA 302	SARA 304	SARA 313
Zinc Chloride	No	Yes	Yes (as Zinc Compound)

SARA THRESHOLD PLANNING QUANTITY: Not applicable.

TSCA INVENTORY STATUS: The components of this product are listed on the TSCA Inventory.

CERCLA REPORTABLE QUANTITY (RQ): Zinc Chloride = 1000 lbs.

OTHER FEDERAL REGULATIONS: Not applicable.

15. REGULATORY INFORMATION (Continued)

STATE REGULATORY INFORMATION: The components of this product are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: Zinc Chloride Fume.

California - Permissible Exposure Limits for Chemical Contaminants: Zinc Chloride Fume.

Florida - Substance List: Zinc Chloride Fume.

Illinois - Toxic Substance List: Zinc Chloride Fume.

Kansas - Section 302/313 List: None.

Massachusetts - Substance List: Zinc Chloride Fume.

Michigan-Critical Materials Register: Zinc Compounds.

Minnesota - List of Hazardous Substances: Zinc Chloride Fume.

Missouri - Employer Information/Toxic Substance List: Zinc Chloride.

New Jersey - Right to Know Hazardous Substance List: Zinc Chloride.

North Dakota - List of Hazardous Chemicals, Reportable Quantities: Zinc Chloride.

Pennsylvania - Hazardous Substance List: Zinc Chloride.

Rhode Island - Hazardous Substance List: Zinc Chloride Fume.

Texas - Hazardous Substance List: Zinc Chloride Fume.

West Virginia - Hazardous Substance List: Zinc Chloride Fume.

Wisconsin - Toxic and Hazardous Substances: Zinc Chloride Fume.

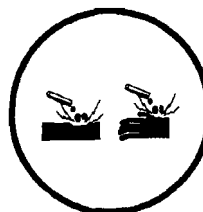
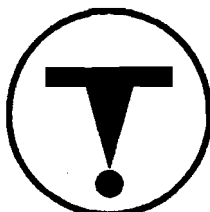
CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): The components of this product are not on the California Proposition 65 lists. **WARNING:** This product when used may produce fumes or gases containing chemicals, known to the State of California to cause cancer, and/or birth defects (or other reproductive harm)

LABELING (Precautionary Statements): **WARNING!** MAY BE FATAL IF SWALLOWED. IRRITATING IF INHALED. CAUSES SKIN AND EYE IRRITATION. Do not taste or swallow. Do not get on skin or in eyes. Avoid breathing airborne dust. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves and goggles, as appropriate. **FIRST-AID:** In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:** Use water fog, dry chemical, CO₂, or "alcohol" foam. **IN CASE OF SPILL:** Sweep up spilled powder carefully, avoiding the generation of airborne dust. Place residue in suitable container and seal. Consult Material Safety Data Sheet for additional information.

- See American National Standard Z49.1 *Safety in Welding, Cutting, and Allied Processes*, published by the American Welding Society, 550 N.W. LeJeune Road, Miami, Florida 33126. OSHA Safety and Health Standards, 29 CFR 1910, available from the U.S. Government Printing Office, Superintendent Office, P.O. Box 371954, Pittsburgh, PA 15250-7954.

TARGET ORGANS: Skin, eyes, respiratory system.

WHMIS SYMBOLS: **D2B:** Materials Causing Other Toxic Effects/Toxic Material.
E: Corrosive Material



16. OTHER INFORMATION

DATE OF PRINTING:

July 12, 2007

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard (29 CFR 1910.1200). Other government regulations must be reviewed for applicability to this product. The information contained herein relates only to the specific product. If the product is combined with other materials, all component properties must be considered. To the best of the Harris Products Group knowledge, the information and recommendations contained in this publication are reliable and accurate as of the date of issue. However, accuracy, suitability, or completeness are not guaranteed, and no warranty, guarantee, or representation, expressed or implied, is made by Harris Products Group as to the absolute correctness or sufficiency of any representation contained in this and other publications; Harris Products Group assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures may not be required under particular or exceptional conditions or circumstances. Data may be changed from time to time. Be sure to consult the latest edition.

ALUMINUM FLUXES

PAGE 7 OF 8

EFFECTIVE DATE: June 19, 2003

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these, which are commonly used, include the following:

CAS #: This is the Chemical Abstract Service Number, which uniquely identifies each constituent.

EXPOSURE LIMITS IN AIR:

ACGIH - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits.

IARC-International Agency for Research on Cancer **TLV** - Threshold Limit Value - an airborne concentration of a substance, which represents conditions under which it is generally believed that nearly all workers, may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average (**TWA**), the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level (**C**). Skin absorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Administration.

PEL - Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL, which was vacated by Court Order. **IDLH** - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. The **DFG** - **MAK** is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). **NIOSH** issues exposure guidelines called Recommended Exposure Levels (**RELs**). When no exposure guidelines are established, an entry of **NE** is made for reference. **NTP**- National Toxicology Program

HAZARD RATINGS:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: Health

Hazard: 0 (minimal acute or chronic exposure hazard); 1 (slight acute or chronic exposure hazard); 2 (moderate acute or significant chronic exposure hazard); 3 (severe acute exposure hazard; onetime overexposure can result in permanent injury and may be fatal); 4 (extreme acute exposure hazard; onetime overexposure can be fatal). Flammability Hazard: 0 (minimal hazard); 1 (materials that require substantial pre-heating before burning); 2 (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); 3 (Class IB and IC flammable liquids with flash points below 38°C [100°F]); 4 (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]). Reactivity Hazard: 0 (normally stable); 1 (material that can become unstable at elevated temperatures or which can react slightly with water); 2 (materials that are unstable but do not detonate or which can react violently with water); 3 (materials that can detonate when initiated or which can react explosively with water); 4 (materials that can detonate at normal temperatures or pressures).

NATIONAL FIRE PROTECTION ASSOCIATION: Health Hazard: 0 (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); 1 (materials that on exposure under fire conditions could cause irritation or minor residual injury); 2 (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); 3 (materials that can on short exposure could cause serious temporary or residual injury); 4 (materials that under very short exposure causes death or major residual injury). Flammability Hazard and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the National Fire Protection Association (**NFPA**). Flash Point - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Human and Animal Toxicology: Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD₅₀** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC₅₀** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m³** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TD₀**, **LDLo**, and **LD₀₁**, or **TC**, **TC₀**, **LCLo**, and **LC₀₁**, the lowest dose (or concentration) to cause lethal or toxic effects. **Cancer Information:** The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. **IARC** and **NTP** rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. **Other Information:** **BEI** - ACGIH Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV. **Ecological Information:** **EC** is the effect concentration in water. **BCF** = Bioconcentration Factor, which is used to determine if a substance will concentrate in lifeforms which consume contaminated plant or animal matter. Coefficient of Oil/Water Distribution is represented by **log K_{ow}** or **log K_{oc}** and is used to assess a substance's behavior in the environment.

REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. **U.S.:** **EPA** is the U.S. Environmental Protection Agency. **DOT** is the U.S. Department of Transportation. **SARA** is the Superfund Amendments and Reauthorization Act. **TSCA** is the U.S. Toxic Substance Control Act. **CERCLA** (or **Superfund**) refers to the Comprehensive Environmental Response, Compensation, and Liability Act. Labeling is per the American National Standards Institute (**ANSI Z129.1**). **CANADA:** **CEPA** is the Canadian Environmental Protection Act. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **TC** is Transport Canada. **DSL/NDL** are the Canadian Domestic/Non-Domestic Substances Lists. **The CPR** is the **Canadian Product Regulations**. This section also includes information on the precautionary warnings, which appear, on the materials package label.

BRAZING / SOLDERING FLUX



600 POWDER FLUX

The 600 Flux is a general purpose brazing flux. It is used with oxy-fuel braze welding using low fuming bronze and nickel silver rods on steel, copper and cast iron. It is applied to the rod by preheating the rod end and dipping the rod into the flux. The flux will adhere to the heated rod.

600 Powder flux has an active temperature range of 1400° F to 2200° F.

**USA
MADE IN**

PART NO.	SIZE
600FX01	1# CAN
600FX50	50# PAIL

PN: 600FX01
1# CAN



700 POWDER FLUX

PART NO.	SIZE
700FX01	14# CAN

STAY-CLEAN® ALUMINUM FLUX

A liquid flux for use with aluminum soldering. Use with Al-Solder 500. Works to join aluminum to dissimilar metals.

STAY-CLEAN® PASTE FLUX

**USA
MADE IN**

An active soldering flux formulated for use with tin-lead, tin-antimony, and tin-silver solders. Superior flux for most metals, copper, brass, bronze, steel, stainless steel, galvanized, Monel®, Not recommended for aluminum, magnesium, or titanium. Not recommended for electrical or electronic applications.

PART NO.	SIZE	
SCLF4	40Z BTL	LIQUID
SCLF16	16OZ BTL	LIQUID
SCLF32	32OZ BTL	LIQUID
SCLF1G	1GL	LIQUID
SCLF55	55GL	LIQUID
SCPF4	4OZ JAR	PASTE
SCPF1	1# JAR	PASTE
SCPF4POP	4OZ BTL	PASTE

STAY-CLEAN® LIQUID FLUX

**USA
MADE IN**

A general purpose zinc chloride flux for soldering with all soft solders use with tin-lead solder, tin-antimony solder, Stay-Brite solder, for soldering virtually all metals, except aluminum, magnesium or titanium. Not recommended for use in electrical or electronic applications.

Specification	Active Temperature	Typical Application
Meets Commercial Spec. A-A-51145C	Below 700°F	Excellent flux for joining copper to copper and copper to brass. Not recommended for electrical or electronic applications.



PN: SCLF16
16oz



PN: SCPF4POP
4oz

BRIDGIT® FLUXES

PASTE FLUX: Designed for use with lead-free solders. Works extremely well with Bridgit lead-free solder in potable water systems and equally well with other solders. Meets all requirements of the Safe Drinking Water Act. Stays active to 800°F and will not burn at soldering temperature. This reduces black carbon formations that can result in voids and leaks.

WATER SOLUBLE FLUX: A water flushable paste that holds its shape and will not slump. Use with plumbing applications, copper and copper-alloy tubes, heating, air-conditioning, mechanical piping, and fire sprinklers. Water-soluble alternative to petroleum-based plumbing fluxes, begins cleaning metals at room temperature, excellent solderability with lead-free solders.

PART NO.	SIZE	
BRPF4	40Z BTL	
BRPF1	1# BTL	
BRPF4WS	40Z BTL	WATER SOLUBLE
BRPF4POP	40Z BTL	WATER SOLUBLE



PN: BRPF4POP
40Z BOTTLE



PN: BRPF4
40Z BOTTLE

Specification	Active Temperature	Typical Application
Conforms to ASTM B813	Below 800°F	Designed for lead-free solders and well suited for use in larger connections where prolonged heating will cause other fluxes to burn.

**USA
MADE IN**

SOLAR WELDING FLUX

Solar Flux is a complex chemical compound in the form of a very fine powder. Solar Flux is mixed with alcohol (methanol/methyl alcohol preferred) and brushed on the weld joint. It is formulated to shield the back of the weld joint from oxygen, dissipate heat and unwanted oxides, and to clean the surface of the metal. It will aid in the flow of filler metal over base metal and form a protective barrier to prevent re-oxidation and heat scale.

Type B for stainless steel, (except 309, 310), precipitation hardening steels, chrome-moly steels, other alloy steels with nickel content below 25%.

PART NO.	SIZE
S0EB01	1# CAN

PN: S0EB01
1# CAN



FLUX PRODUCTS



MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards. This Material Safety Data Sheet is offered pursuant to OSHA's Hazard

Communication Standard (29 CFR 1910.1200). Other government regulations must be reviewed for applicability to these products.

WARNING: PRODUCT COMPONENTS PRESENT HEALTH AND SAFETY HAZARDS. READ AND UNDERSTAND THIS MATERIAL SAFETY DATA SHEET (M.S.D.S.). ALSO, FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES. This product may contain Chromium and/or Nickel which are listed by OSHA, NTP, or IARC as being a carcinogen or potential carcinogen. Use of this product may expose you or others to fumes and gases at levels exceeding those established by the American Conference of Governmental Industrial Hygienists (ACGIH) or the Occupational Safety and Health Administration (OSHA). The information contained herein relates only to the specific product. If the product is combined with other materials, all component properties must be considered. **BE SURE TO CONSULT THE LATEST VERSION OF THE MSDS. MATERIAL SAFETY DATA SHEETS ARE AVAILABLE FROM Harris Products Group** salesinfo@jwharris.com 513-754-2000 www.jwharris.com

STATEMENT OF LIABILITY-DISCLAIMER

To the best of the Harris Products Group knowledge, the information and recommendations contained in this publication are reliable and accurate as of the date prepared. However, accuracy, suitability, or completeness are not guaranteed, and no warranty, guarantee, or representation, expressed or implied, is made by Harris Products Group, as to the absolute correctness or sufficiency of any representation contained in this and other publications; Harris Products Group assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this and other publications, or that other or additional measures may not be required under particular or exceptional conditions or circumstances. Data may be changed from time to time.

PART I What is the material and what do I need to know in an emergency?

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED):	STAY CLEAN® LIQUID SOLDERING FLUX
CHEMICAL NAME/CLASS:	Zinc Chloride/Ammonium Chloride Solution
SYNONYMS:	Not Applicable
PRODUCT USE:	Metal-Soldering Operations
DOCUMENT NUMBER:	0099
SUPPLIER/MANUFACTURER'S NAME:	Harris Products Group.
ADDRESS:	4501 Quality Place, Mason, Ohio 45040
EMERGENCY PHONE:	CHEMTREC: 1-800-424-9300
BUSINESS PHONE:	513-754-2000 FAX 513-754-8778
DATE OF PREPARATION:	July 13, 2007

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	% w/w	EXPOSURE LIMITS IN AIR					
			ACGIH-TLV		OSHA-PEL		IDLH mg/m ³	OTHER mg/m ³
			TWA mg/m ³	STEL mg/m ³	TWA mg/m ³	STEL mg/m ³		
Zinc Chloride (exposure limits are for Zinc Chloride fume)	7646-85-7	< 30	1	2	1	2 (vacated 1989 PEL)	50	NIOSH RELS: TWA = 1 STEL = 2 Carcinogen: EPA-D
Ammonium Chloride (exposure limits are for Ammonium Chloride fume)	12125-02-9	5-25	10	20	10 (vacated 1989 PEL)	20 (vacated 1989 PEL)	NE	NIOSH RELS: TWA = 10 STEL = 20
Hydrochloric Acid (as Hydrogen Chloride)	7647-01-0	< 5	NE	7 ceiling	NE	7 ceiling	76	NIOSH REL: TWA = 7 ceiling DFG MAKs: TWA = 7 ceiling PEAK = 2•MAK 5 min., momentary value DFG MAK Pregnancy Risk Classification: C Carcinogen: IARC-3

NE = Not Established. See Section 16 for Definitions of Terms Used.

NOTE (1): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

2. COMPOSITION and INFORMATION ON INGREDIENTS (Continued)

CHEMICAL NAME	CAS #	% w/w	EXPOSURE LIMITS IN AIR					
			ACGIH-TLV		OSHA-PEL		IDLH mg/m ³	OTHER mg/m ³
			TWA mg/m ³	STEL mg/m ³	TWA mg/m ³	STEL mg/m ³		
Methanol	67-56-1	< 5	262 (skin)	328	260	325 (vacated 1989 PEL)	7860	NIOSH REL: TWA = 260 (skin) STEL = 325 DFG MAKs: TWA = 260 (Danger of Cutaneous Absorption) PEAK = 2•MAK 30 min., average value DFG MAK Pregnancy Risk Classification: C
Water	7732-18-5	Balance	NE	NE	NE	NE	NE	NE

NE = Not Established.

See Section 16 for Definitions of Terms Used.

NOTE (1): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

3. HAZARD IDENTIFICATION



EMERGENCY OVERVIEW: This product is a clear, colorless liquid, possessing a slight, sweet odor. This material is acidic and can irritate and burn the skin, eyes, and any other contaminated tissue. This product is neither flammable nor reactive under normal circumstances; however, it may generate flammable hydrogen gas upon contact with metals. Emergency responders must wear the proper personal protective equipment suitable for the situation to which they are responding.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: The most significant routes of over-exposure for this product are by contact with skin, eye contact, or inhalation of mists or sprays generated by this product. The symptoms of overexposure to this product, by route of entry, are as follows:

INHALATION: If vapors, mists, or sprays of this product are inhaled, they can irritate and burn the nose, throat, and respiratory system. Symptoms of inhalation over-exposure may include sore throat, choking, coughing, and difficulty breathing. Prolonged or repeated over-exposure may cause burns and ulcers to the nose and throat, dental erosion, bronchitis, and stomach pains. It has been reported that a worker developed asthmatic symptoms after performing soldering work with a flux containing Ammonium and Zinc Chlorides (components of this product). It has been reported that inhalation of Methanol (a component of this product) vapors in high concentrations can cause blindness. Severe inhalation overexposure may cause pulmonary edema (a life-threatening accumulation of fluid in the lungs) or pneumonitis. Symptoms of pulmonary edema (e.g., shortness of breath, chest pains) can be delayed for several hours after exposure. Severe inhalation of vapors or fumes (as may occur if individuals are exposed in poorly ventilated areas, such as confined spaces) may be harmful.

CONTACT WITH SKIN or EYES: Depending on the duration and concentration of over-exposure, skin contact with this product can irritate and burn the skin. Repeated or prolonged over-exposure to this product may result in dermatitis (red, dry, itchy skin) and ulceration. Depending on the duration and concentration of over-exposure, eye contact with this product can irritate and burn the eyes. Eye over-exposure can cause pain, tearing, and redness. Severe eye over-exposure may cause blindness.

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH		(BLUE)	3
FLAMMABILITY		(RED)	0
REACTIVITY		(YELLOW)	0
PROTECTIVE EQUIPMENT			D
EYES	RESPIRATORY	HANDS	BODY
	SEE SECTION 8		SEE SECTION 8
For routine applications.			

See Section 16 for Definition of Ratings

3. HAZARD IDENTIFICATION (Continued)

SKIN ABSORPTION: Methanol (a component of this product) is readily absorbed through the skin. Because Methanol is a minor component of this product, skin absorption is not anticipated to be a significant route of over-exposure.

INGESTION: If this flux is ingested, nausea, vomiting, and diarrhea may occur (depending on the amount of the product swallowed). Severe ingestion exposures may result in damage to the tissues of the gastrointestinal system, and death.

INJECTION: Though not anticipated to be a likely route of occupational exposure for this product, injection of this product (via punctures or lacerations by a contaminated object) may cause local reddening, tissue swelling, and discomfort in addition to the wound.

HEALTH EFFECTS OR RISKS FROM OVER-EXPOSURE: An Explanation in Lay Terms. Symptoms associated with over-exposure to this product are as follows:

ACUTE: Symptoms of inhalation over-exposure may include sore throat, choking, coughing, difficulty breathing. Lung damage may occur after severe inhalation exposures. Depending on the duration and concentration of over-exposure, skin or eye contact with this product can irritate and burn contaminated tissue. Ingestion overexposure may be harmful or fatal.

CHRONIC: Prolonged or repeated inhalation over-exposure may cause burns and ulcers to the nose and throat, dental erosion, bronchitis, and stomach pains. Repeated or prolonged over-exposure to this product may result in dermatitis (red, dry, itchy skin) and ulceration. Refer to Section 11 (Toxicology Information) for additional data.

TARGET ORGANS: ACUTE: Skin, eyes, respiratory system, central nervous system.

CHRONIC: Skin, respiratory system, and gastrointestinal system.

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

Victims of chemical exposure must be taken for medical attention, if adverse health effects occur. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with victim.

SKIN EXPOSURE: In the event of skin-over-exposure, rinse affected area with a soap and water solution. If skin contact results in irritation, the minimum flushing is for 15 minutes. Victim must seek medical attention if adverse health effects occur.

EYE EXPOSURE: If this product enters the eyes, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Victim must seek medical attention if adverse health effects occur.

INHALATION: If this product is inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions.

INGESTION: If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. Do not induce vomiting, unless directed by medical personnel. Have victim rinse mouth with water, if conscious. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Dermatitis, other skin disorders, and respiratory conditions may be aggravated by over-exposure to this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure. Provide oxygen, if necessary. Pulmonary function tests, chest X-rays, and nervous system evaluations may prove useful. Consultation with an ophthalmologist is recommended if eye exposure leads to tissue damage.

5. FIRE-FIGHTING MEASURES

FLASH POINT: Not flammable.

AUTOIGNITION TEMPERATURE: Not applicable.

FLAMMABLE LIMITS (in air by volume, %): Lower (LEL): Not applicable.
Upper (UEL): Not applicable

FIRE EXTINGUISHING MATERIALS: This material is not flammable. Use extinguishing media appropriate for surrounding fire.

Water Spray: YES (for cooling) Carbon Dioxide: YES

Halon: YES

Foam: YES

Dry Chemical: YES

Other: Any "ABC" Class.

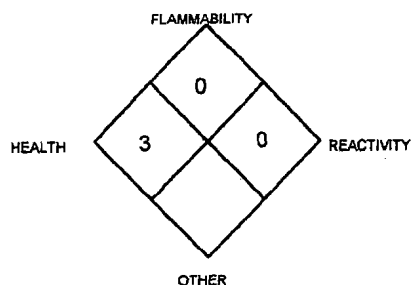
UNUSUAL FIRE AND EXPLOSION HAZARDS: This product is acidic and presents a contact hazard to firefighters. During a fire, irritating and toxic gases (e.g., carbon monoxide, carbon dioxide, hydrogen chloride, nitrogen and zinc oxides, and ammonia) may be generated.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Chemical resistant clothing (e.g., chemical splash suit) may be necessary. Move containers from fire area if it can be done without risk to personnel. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

NFPA RATING



**See Section 16 for
Definition of Ratings**

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel.

In the event of an incidental release of this product, personnel should wear gloves, safety glasses (or goggles), and face shield during clean up. In the event of a non-incidental release, minimum Personal Protective Equipment should be **Level B: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard-hat, and Self-Contained Breathing Apparatus.** Absorb spilled liquid with polypads or other suitable absorbing material. Neutralize area with sodium bicarbonate or other agent suitable for acids. Test area with litmus paper to insure neutralization is complete. Decontaminate the area thoroughly. Place all spilled residues in a suitable container and seal. Dispose of in accordance with applicable U.S. Federal, State, or local procedures and appropriate Canadian standards (see Section 13, Disposal Considerations).

PART III *How can I prevent hazardous situations from occurring*

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat or drink while handling this material. Avoid generating splashes or sprays of this product. Remove contaminated clothing immediately.

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Empty containers may contain residual liquid; therefore, empty containers should be handled with care.

Store this product in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible chemicals (see Section 10, Stability and Reactivity). Material should be stored in secondary containers or in a diked area, as appropriate. Storage and use areas should be covered with impervious materials. Keep container tightly closed when not in use. Inspect all incoming containers before storage to ensure they are properly labeled and not damaged.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Collect all rinsates and dispose of according to applicable U.S. Federal, State, or local procedures and appropriate Canadian standards.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in Section 2 (Composition and Information on Ingredients). Exhaust directly to the outside, taking necessary precautions for environmental protection. Prudent practice is to ensure eyewash/safety shower stations are available near areas where this product is used.

RESPIRATORY PROTECTION: Maintain airborne contaminant concentrations below guidelines listed in Section 2 (Composition and Information on Ingredients) if applicable. If respiratory protection is needed, U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. Respiratory Protection is recommended to be worn during welding operations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998). The following NIOSH respiratory selection guidelines are available for Zinc Chloride Fume:

CONCENTRATION

Up to 10 mg/m³:

Up to 25 mg/m³:

Up to 50 mg/m³:

RESPIRATORY PROTECTION

Dust, mist, and fume respirator or Supplied-Air Respirator (SAR).

Powered air-purifying respirator with dust, mist and fume filter(s) or SAR operated in a continuous-flow mode.

Full-facepiece respirator with high-efficiency particulate filter(s), powered air-purifying respirator with tight-fitting facepiece and high-efficiency particulate filter(s), full-facepiece Self-Contained Breathing Apparatus (SCBA), or full-facepiece SAR.

Emergency or Planned Entry into Unknown Concentrations or IDLH Conditions: Positive pressure, full-facepiece SCBA or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.

Escape: Full-facepiece respirator with high-efficiency particulate filter(s) or escape-type SCBA.

EYE PROTECTION: Safety glasses or goggles. Faceshields may be needed if operations generate splashes or sprays.

HAND PROTECTION: Wear neoprene or rubber gloves for routine industrial use.

BODY PROTECTION: None needed for normal circumstances of use. Use body protection appropriate for task (i.e., apron, coveralls, and chemically resistant boots).

9. PHYSICAL and CHEMICAL PROPERTIES

RELATIVE VAPOR DENSITY (air = 1): 4.0

SPECIFIC GRAVITY (water = 1): 1.32

SOLUBILITY IN WATER: Slightly soluble.

VAPOR PRESSURE: Not established.

ODOR THRESHOLD: Not established.

COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not established.

APPEARANCE, ODOR AND COLOR: This product is a clear, colorless liquid with a slight, sweet odor.

HOW TO DETECT THIS SUBSTANCE (warning properties): Litmus paper will turn red upon contact with this product. The odor may also act as a distinguishing characteristic of this product.

EVAPORATION RATE (nBuAc = 1): > 1

FREEZING/MELTING POINT: Not established.

BOILING POINT: Not established.

pH: Not applicable.

10. STABILITY and REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, hydrogen chloride, nitrogen and zinc oxides, and ammonia.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong oxidizers, acids, alkalis and their carbonates, hydrogen cyanide, interhalogens, ammonium nitrate, potassium chlorate, lead and silver salts.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Extreme temperatures, incompatible materials.

PART IV *Is there any other useful information about this material?*

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: Human toxicological data are available for the components of this product, as listed below. Other data for animals are available but are not presented in this Material Safety Data Sheet.

HYDROCHLORIC ACID:

LCLo (inhalation, human) = 1300 ppm/ 30 minutes

HYDROCHLORIC ACID (continued):

LCLo (inhalation, human) = 3000 ppm/ 5 minutes

HYDROCHLORIC ACID:

LDLo (unreported, man) = 81 mg/kg

11. TOXICOLOGICAL INFORMATION (Continued)

TOXICITY DATA (continued):

METHANOL:

DNA Inhibition System (lymphocyte, human) 300 mmol/L

LDLo (oral, man) = 6422 mg/kg; central nervous system, pulmonary, gastrointestinal effects

TDLo (oral, man) = 3429 mg/kg; eye effects

LDLo (oral, human) = 428 mg; central nervous system, pulmonary effects

METHANOL (continued):

LDLo (oral, human) = 143 mg/kg; eye, pulmonary, gastrointestinal effects

TDLo (oral, woman) = 4000 mg/kg; eye, pulmonary, gastrointestinal effects

TCLo (inhalation, human) = 86000 mg/m³; eye, pulmonary effects

METHANOL (continued):

TCLo (inhalation, human) = 300 ppm; eye, central nervous system, pulmonary effects

ZINC CHLORIDE:

DNA Inhibition System (human, lymphocyte) = 0.360 mmol/L

TCLo (inhalation, man) = 4800 mg/m³/ 30 minutes; pulmonary effects

TCLo (inhalation, human) = 4800 mg/m³/ 3 hours

SUSPECTED CANCER AGENT: The components of this product are listed as follows:

HYDROCHLORIC ACID: IARC-3 (Not Classifiable as to Carcinogenicity to Humans)

ZINC CHLORIDE: EPA-D Not Classifiable as to Human Carcinogenicity)

The other components of this product are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, and CAL/OSHA, and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: This product can severely irritate and burn contaminated tissue.

SENSITIZATION TO THE PRODUCT: It has been reported that a worker developed asthmatic symptoms after performing soldering work with a flux containing Ammonium and Zinc Chlorides (components of this product).

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product on the human reproductive system.

Mutagenicity: This product is not reported to produce mutagenic effects in humans. Human mutation data are available for Methanol and Zinc Chloride (components of this product); these data were obtained during clinical studies on specific human tissues exposed to high doses of these compounds. Animal mutation data are available for Ammonium Chloride and Hydrochloric Acid (components of this product); these data were obtained during clinical studies on specific animal tissues exposed to high doses of these compounds.

Embryotoxicity: This product is not reported to produce embryotoxic effects in humans.

Teratogenicity: This product is not reported to cause teratogenic effects in humans. Clinical studies on test animals exposed to relatively high doses of Methanol and Zinc Chloride (components of this product) indicate teratogenic effects.

Reproductive Toxicity: This product is not reported to cause adverse reproductive effects in humans. Clinical studies on test animals exposed to relatively high doses of Hydrochloric Acid, Methanol, and Zinc Chloride (components of this product) indicate adverse reproductive effects.

A **mutagen** is a chemical, which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An **embryotoxin** is a chemical, which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A **teratogen** is a chemical, which causes damage to a developing fetus, but the damage does not propagate across generational lines. A **reproductive toxin** is any substance, which interferes in any way with the reproductive process.

ACGIH BIOLOGICAL EXPOSURE INDICES: Currently, there is a ACGIH Biological Exposure Index (BEI) determined for the Methanol component of this product.

CHEMICAL DETERMINANT	SAMPLING TIME	BEI
METHANOL • Methanol in urine	• End of shift	• 15 mg/L

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: The components of this product will decompose under normal environmental conditions. Additional environmental data are available as follows:

HYDROCHLORIC ACID: Water solubility: 56.5 g/ 100 cc (60°C); 82.3 g/ 100 cc (0°C).

METHANOL: Log K_{ow} = -0.77. Water Solubility = Miscible. BOD (g/g) = 0.76-1.12 standard dilution/sewage seed. Methanol occurs naturally as a plant volatile and during microbial degradation of biological wastes. When released on land or water, it is apt to volatilize and biodegrade. The estimated half-life in water is 5.3 hours to 2.6 days. Methanol is highly mobile in soil. The Bioconcentration Factor for Methanol is 2.0.

ZINC CHLORIDE: Water solubility: 432 g/ 100 mL (25°C), 614 g/ 100 mL (100°C). Zinc can persist indefinitely as a cation. Radioactive zinc (⁶⁵Zn) has been found to concentrate in plants and milk. Acute Hazard Level Threshold: For vegetables and other crops - 750-ppm (Zn)

EFFECT OF MATERIAL ON PLANTS or ANIMALS: This product can be harmful to plant and animal life. Specific data on test animals are available, but are not presented in this Material Safety Data Sheet.

12. ECOLOGICAL INFORMATION (Continued)

EFFECT OF CHEMICAL ON AQUATIC LIFE: Large releases of this product may be harmful or fatal to exposed aquatic life.

Additional aquatic toxicity data are available as follows:

HYDROCHLORIC ACID:

LC₁₀₀ (trout) = 10 mg/L/ 24 hours

LC₅₀ (shrimp) = 100-330 ppm/ 48 hours (salt water)

LC₅₀ (starfish) = 100-300 mg/L/ 48 hours

LC₅₀ (cockle) = 330-1000 mg/L/ 48 hours

TLm (*Gambusia affinis*, mosquito fish) = 282 ppm/ 96 hours/ fresh water

LC₅₀ (*Carassium auratus*, goldfish) = 178 mg/L (1-2 hour survival time)

LC₅₀ (shore crab) = 240 mg/L/ 48 hours

HYDROCHLORIC ACID (continued):

LC (*Lepomis macrochirus*, bluegill sunfish) = 3.6 mg/L/ 48 hours

LC₅₀ (*Lepomis macrochirus*/bluegill sunfish) = pH 3.0-3.5/ 96 hours

TLm (sunfish) = 96 hours/ pH 3.6/ 20°C

TLm (goldfish) = 96 hours/ pH 4/ 20°C

TLm (stickleback) = 96 hours/ pH 4.6/ 20°C

METHANOL:

LC₅₀ (*Pimephales promelas*, fathead minnow) = 29.4 mg/L/ 96 hours

ZINC CHLORIDE:

Acute Hazard Level Threshold: For fish - 0.1 ppm (Zn)

Odorless zinc poisoning causes inflamed gills in fish.

Laboratory studies of Atlantic salmon, rainbow trout, carp, and goldfish have shown avoidance reactions by these fish to zinc in water.

Radioactive zinc (⁶⁵Zn) has been found to concentrate in aquatic life.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations or with regulations of Canada and its Provinces. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

U.S. EPA WASTE NUMBER: D002 (Characteristic/Corrosivity), applicable to wastes consisting only of this product.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS (Per 49 CFR 172.101) BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME:

Corrosive liquids, n.o.s. (Zinc Chloride, Hydrochloric Acid)

HAZARD CLASS NUMBER and DESCRIPTION:

8 (Corrosive)

UN IDENTIFICATION NUMBER:

UN 1760

PACKING GROUP:

III

DOT LABEL(S) REQUIRED:

Corrosive (Class 8)

NOTE: Consumer commodity shipments of this product 1-gallon or less in volume may be renamed "Consumer Commodity" and reclassified as ORM-D material. Refer to 49 CFR 173.154(c) for additional information.

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 154

MARINE POLLUTANT: The components of this product are not designated by the Department of Transportation to be Marine Pollutants (49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This material is considered as dangerous goods, per regulations of Transport Canada. Use the above information for the preparation of Canadian shipments.

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: The components of this product are subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

CHEMICAL NAME	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
Ammonium Chloride	No	Yes	No
Hydrochloric Acid	No	Yes	Yes
Methanol	No	Yes	Yes
Zinc Chloride	No	Yes	Yes (as Zinc Compound)

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for the components of this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Ammonium Chloride = 5000 lb (2270 kg); Hydrochloric Acid = 5000 lb (2270 kg); Methanol = 5000 lb (2270 kg); Zinc Chloride = 1000 lb (454 kg).

U.S. TSCA INVENTORY STATUS: The components of this product are listed on the TSCA Inventory.

15. REGULATORY INFORMATION (Continued)

ADDITIONAL U.S. REGULATIONS (continued):

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

U.S. STATE REGULATORY INFORMATION: The components of this product are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: Ammonium Chloride Fume, Hydrochloric Acid, Methanol, and Zinc Chloride Fume.

California - Permissible Exposure Limits for Chemical Contaminants: Ammonium Chloride, Hydrochloric Acid, Methanol, and Zinc Chloride Fume.

Florida - Substance List: Ammonium Chloride, Hydrochloric Acid, Methanol, and Zinc Chloride Fume.

Illinois - Toxic Substance List: Ammonium Chloride Vapor, Hydrochloric Acid, Methanol, and Zinc Chloride Fume.

Kansas - Section 302/313 List: Hydrochloric Acid, Methanol.

Massachusetts - Substance List: Ammonium Chloride, Hydrochloric Acid, Methanol, and Zinc Chloride Fume.

Minnesota - List of Hazardous Substances: Ammonium Chloride, Hydrochloric Acid, Methanol, and Zinc Chloride Fume.

Michigan-Critical Materials Register: Zinc Compounds.

Missouri - Employer Information/Toxic Substance List: Ammonium Chloride, Hydrochloric Acid, Methanol, and Zinc Chloride.

New Jersey - Right to Know Hazardous Substance List: Ammonium Chloride, Hydrochloric Acid, Methanol, and Zinc Chloride.

North Dakota - List of Hazardous Chemicals, Reportable Quantities: Ammonium Chloride, Hydrochloric Acid, Methanol, and Zinc Chloride.

Pennsylvania - Hazardous Substance List: Ammonium Chloride, Hydrochloric Acid, Methanol, and Zinc Chloride.

Rhode Island - Hazardous Substance List: Ammonium Chloride Fume, Hydrochloric Acid, Methanol, and Zinc Chloride Fume.

Texas - Hazardous Substance List: Hydrochloric Acid, Methanol, and Zinc Chloride Fume.

West Virginia - Hazardous Substance List: Hydrochloric Acid, Methanol, and Zinc Chloride Fume.

Wisconsin - Toxic and Hazardous Substances: Hydrochloric Acid, Methanol, and Zinc Chloride Fume.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): No component of this product is on the California Proposition 65 Lists.

ANSI LABELING (Z129.1): DANGER! CORROSIVE. MAY BE HARMFUL OR FATAL IF INHALED OR SWALLOWED. CAUSES SKIN OR EYE BURNS. Do not taste or swallow. Do not get on skin or in eyes. Avoid breathing vapors or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves, goggles, face-shields, suitable body protection, and NIOSH-approved respiratory protection, as appropriate. **FIRST-AID:** In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:** Use water fog, dry chemical, CO₂, or "alcohol" foam. **IN CASE OF SPILL:** Absorb spill with polypads or other suitable absorbent materials. Neutralize with agent suitable for acids. Place residue in suitable container and seal. Consult Material Safety Data Sheet for additional information.

ADDITIONAL CANADIAN REGULATIONS:

CANADIAN DSL/NDL INVENTORY STATUS: The components of this product are on the DSL/NDL Lists.

OTHER CANADIAN REGULATIONS: Not applicable.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: The components of this product are not on the CEPA Priorities Substances Lists

CANADIAN WHMIS SYMBOLS: D1B: Poisonous and Infectious Materials/ Immediate and Serious Toxic Effects.
E: Corrosive Material.



16. OTHER INFORMATION

PREPARED BY:

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This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard (29 CFR 1910.1200). Other government regulations must be reviewed for applicability to this product. The information contained herein relates only to the specific product. If the product is combined with other materials, all component properties must be considered. To the best of the Harris Products Group knowledge, the information and recommendations contained in this publication are reliable and accurate as the date of issue. However, accuracy, suitability, or completeness are not guaranteed, and no warranty, guarantee, or representation, expressed or implied, is made by Harris Products Group, as to the absolute correctness or sufficiency of any representation contained in this and other publications Harris Products Group. assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures may not be required under particular or exceptional conditions or circumstances. Data may be changed from time to time. Be sure to consult the latest edition.