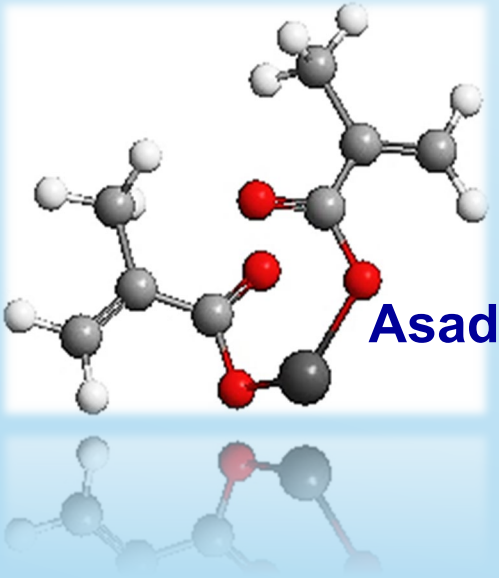
unsaturated metal salt monomer

ACRYLIC ACID METAL SALT
METHACRYLIC ACID METAL SALT



Asada Chemical Industry Co., Ltd.

Updated on 1 April, 2021

1. Introduction

(Meta) Acrylic acid metal salt is highly reactive. It can be polymerized and crosslinked by using some general processing methods, such as catalyst, heat, ultraviolet or electron beam irradiation.

There are water-soluble and powder two types

It is applied in a wide range of fields for rubber and resin modification because of its' various properties of metal species

1. Introduction

Usage and expected effect

Metal species	Usage	Expected effect
Zinc (Zn)	Golf ball core Industrial roll Hose, sole Film coating Wood modification	Reversibility, hardness Strength and wear resistance, Heat resistance, weather resistance Consecutiveness, Gas barrier, Heat resistance, corrosion resistance
Magnesium(Mg) Calcium(Ca)	Waterstops for civil repair Site improvement materials	Elastic gel formation, Water swelling, stability Fast hardness
Sodium(Na) Potassium(K)	Special oligomer raw material	

2. Our products

Water-soluble type

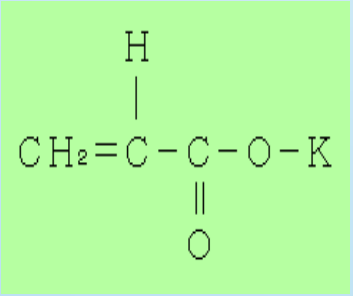
Products name	Name	Concentration *representative value	Appearance	CAS No.	Stock status
ZA30	Acrylic acid zinc	**29.8 %**	Colorless to light brown solution	**2-985 (14643-87-9)**	normal inventory
MA35	Acrylic acid magnesium	**36.3 %**	light brown solution	**2-985 (5698-98-6)**	normal inventory
CA25	Acrylic acid calcium	**25.5 %**		**2-985 (6292-01-9)**	Built –to-order

※Concentration / purity is an example of analytical values and does not indicate standard values.

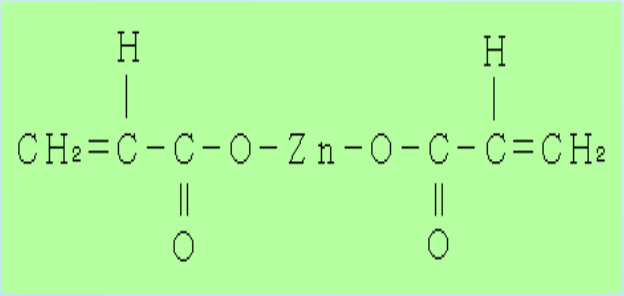
2. Our products

Powder type（Acrylate）

Products name	Name	Purity *representative value	Appearance	CAS No.	Stock status
PA	Acrylic acid potassium	**99.2 %**	**White powder**	**2-3448 (10192-85-5)**	normal inventory
ZDA-100	Acrylic acid zinc	**99.7 %**	**White powder**	**2-985 (14643-87-9)**	normal inventory
ZDA-90		**91.2 %**	**White powder**		normal inventory



Potassium acrylate

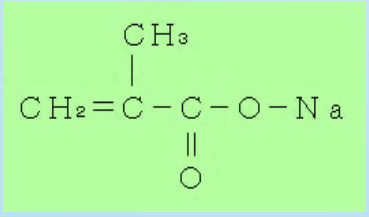


Zinc acrylate

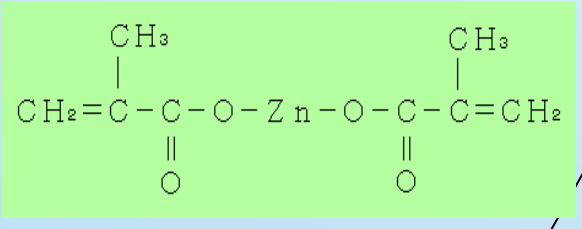
2. Our products

Powder type (Methacrylic acid salt)

Products name	Name	Purity *representative value	Appearance	CAS No.	Stock status
S-MA	Methacrylic acid sodium	**99.9 %**	**White powder**	**2-1027 (5536-61-8)**	Built –to-order
P-MA	Methacrylic acid potassium	**99.2 %**	**White powder**	**2-1027 (6900-35-2)**	Test～ Built –to-order
M-CP	Methacrylic acid zinc	**96.9 %**	**White powder**	**2-1028 (13189-00-9)**	Built –to-order
R-20S		**84.7 %**	**White powder**		normal inventory
R-60M		**76.1 %**	**White powder**		Built –to-order
R-MMA2	Methacrylic acid magnesium	**83.4 %**	**White powder**	**2-2593 (7095-16-1)**	Built –to-order



Sodium methacrylate



Zinc methacrylate

3. Products Usage example①

ZA30

PET film can get a barrier property similar as aluminum foil, while transparent by coating by zinc acrylate aqueous solution.
Used for gas barrier film as packaging materials.

Boil-in-the-bag food(photo)

By pressure-injecting the zinc acrylate aqueous solution into wood then heat-treating, by using this way, it can improve the performance, such as antiseptic, anti-termite, and resistant to warping and cracking, keep dimensionally stable etc.
Used for benches, wooden decks, observatories, etc.

Wooden deck(photo)

3. Products Usage example②

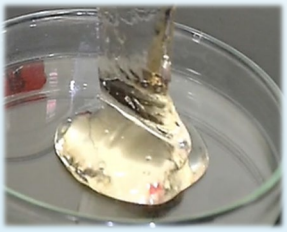
MA35

MA35, easily polymerized by redox reaction It becomes an elastic gel and exhibits the following functions, water absorption, swelling, and compression stability. Utilizing its characteristics, it is used as a waterstops material in civil engineering

•Homogel formation

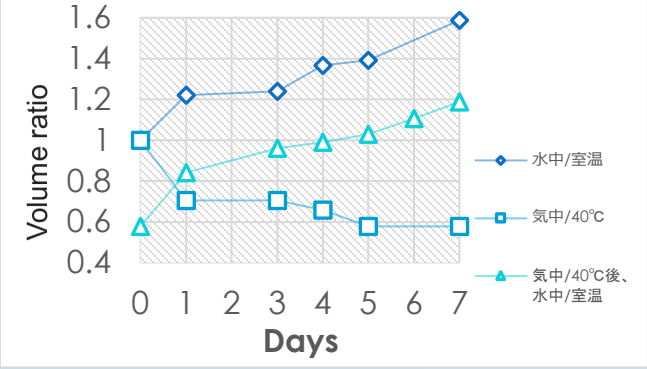
MA35
50 g
5w/v% Ammonium persulfate 1ml
5w/v% L -ascorbic
1ml

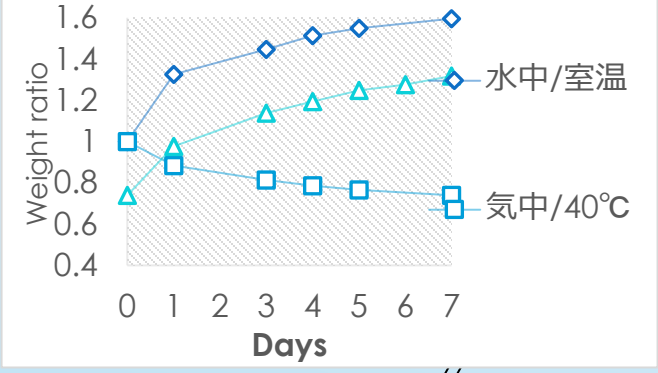
→ Add all in Gels in about 30s turns into viscoelastic gel



※The gelation speed can be adjusted by the amount of catalyst (ammonium persulfate, ℓ-ascorbic acid). Also, the gel strength can be weakened by adding water before addition.

•Water absorption and swelling





※Leave stable at room temperature in the water
※※Vertical: When the initial state of volume and weight is 1.

3. Products Usage example③

ZDA-90
R-20S

Zinc acrylate and zinc methacrylate are used in products, such as golf balls and auxiliary belts for automobiles. Widely used both in Japan and overseas.

A co-crosslinking agent when added to rubber and subjected to peroxide vulcanization By graft-polymerizing on rubber molecules to improve the reinforcing effect. As a result, physical characteristics, such as torque increase, modulus, hardness, heat resistance, compression resistance, permanent strain resistance, and wear resistance are improved.
It is used as a co-crosslinking agent for diene rubbers such as EPR, EPDM, NR, SBR, NBR, and BR.

Varies rubbers products(photos)

3. Products Usage example④

R-20S

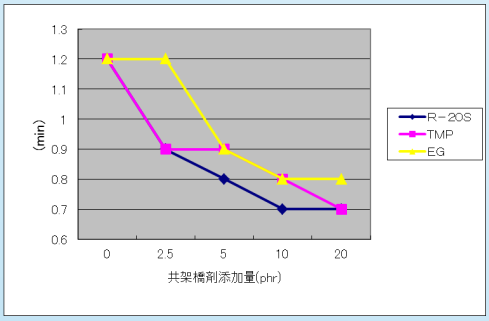
R-20S is a product for surface treatment. It has great impact on the in-rubber dispersibility. Compared to other co-crosslinkers, it can effectively improve the strength, hardness, and tensile stress.

Product name	blending quantity (pts.wt.)
ENB series EPDM(iodine value)	100
HAF carbon black	50
Naphthenic acid process oil	5
stearic acid	1
Zinc oxide No. 3	5
Organic peroxideD-40	5.4
Co-crosslinking agent	State separated

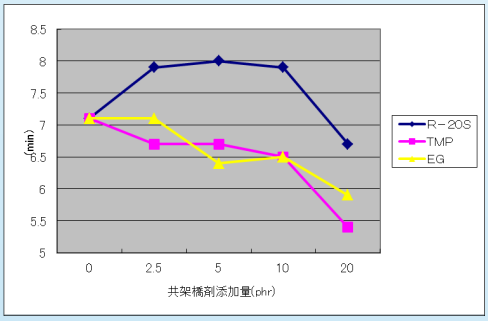
Product name	Chemical name
R-20S	Zinc methacrylate
TMP	Trimethylolpropane trimethacrylate
EG	Ethylene glycol dimethacrylate

Rheometer Test: θ＝±1° , 100cpm , 170℃

t S1

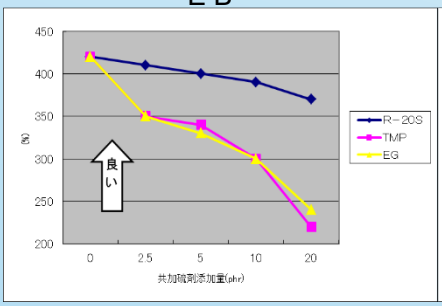


t 90－t 10



Tensile Test: 170℃ Press vulcanization

E B



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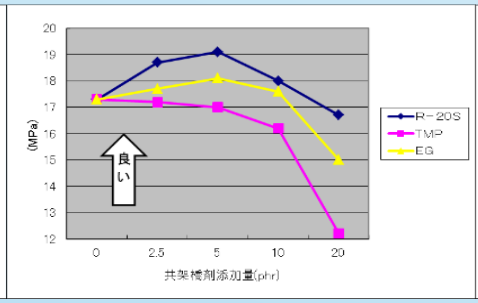
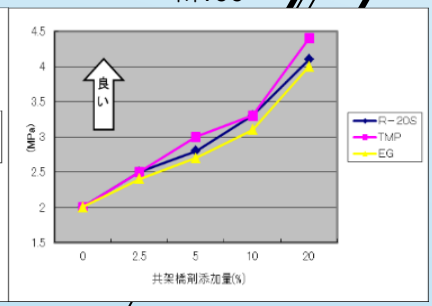


M100

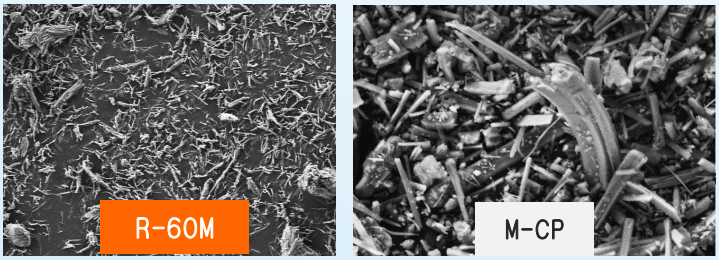


3. Products Usage example⑤

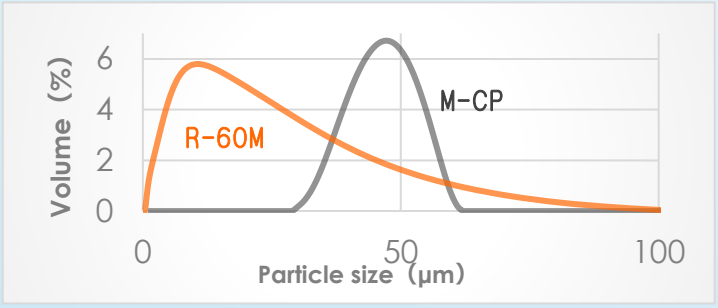
R-60M

R-60M is finer than conventional zinc methacrylate products. Uniform dispersibility in rubber and durability of rubber products are improved. Expected as a new higher quality and functional rubber modifier.

SEM (1000 times)

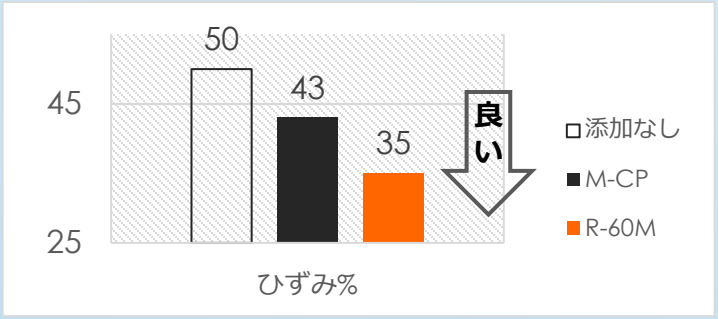


PSD
(particle-size distribution)



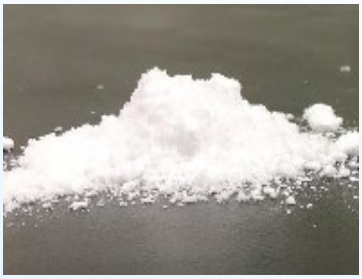
＜EPDM—PO Vulcanization、Add 5 parts＞

Compression set testing（100±1℃×24hours、compressibility 25%）



⇒Improved durability against heat aging

3. Products Usage example⑤



S-MA
P-MA

Potassium methacrylate and sodium are mainly used as special monomer synthesis.
Special monomers / oligomers are widely deployed for these special industries, such as foods/cosmetics healthcare related, paints, electronic materials, etc.

Other polymer modifications and surface treatments may be used for further usage purposes.

Special monomer synthesis reaction (example)

$CH_2=C(CH_3)COOM+R\text{-}X \rightarrow CH_2=C(CH_3)COOR + MX$
M:Na,K　X:Cl,Br,I

Special monomer usage (photo)

4. Precautions

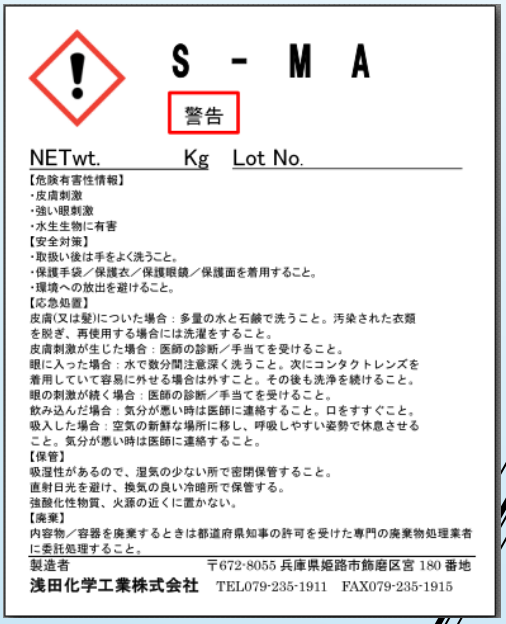
＜Handling Precautions＞

Please make sure read through the SDS (Safety Data Sheet) before use the products.

＜Precautions for storage＞

- To avoid the direct sunlight and high temperature.
- Use it as soon as possible once the package is opened, or seal and repackage.
- Powdered products are hygroscopic, especially **Potassium** and **Sodium salts**. Keep out of the moisture and humidity.

＜Example of a Label (S-MA)＞


S - M A

警告

NETwt. Kg Lot No.

【危険有害性情報】
・皮膚刺激
・強い眼刺激
・水生生物に有害
【安全対策】
・取扱い後は手をよく洗うこと。
・保護手袋／保護衣／保護眼鏡／保護面を着用すること。
・環境への放出を避けること。
【応急処置】
皮膚(又は髪)についた場合：多量の水と石鹸で洗うこと。汚染された衣類を脱ぎ、再使用する場合には洗濯をすること。
皮膚刺激が生じた場合：医師の診断／手当てを受けること。
眼に入った場合：水で数分間注意深く洗うこと。次にコンタクトレンズを着用していて容易に外せる場合は外すこと。その後も洗浄を続けること。
眼の刺激が続く場合：医師の診断／手当てを受けること。
飲み込んだ場合：気分が悪い時は医師に連絡すること。口をすすぐこと。
吸入した場合：空気の新鮮な場所に移し、呼吸しやすい姿勢で休息させること。気分が悪い時は医師に連絡すること。
【保管】
吸湿性があるので、湿気の少ない所で密閉保管すること。
直射日光を避け、換気の良い冷暗所で保管する。
強酸化性物質、火源の近くに置かない。
【廃棄】
内容物／容器を廃棄するときは都道府県知事の許可を受けた専門の廃棄物処理業者に委託処理すること。

製造者 〒672-8055 兵庫県姫路市飾磨区宮 180 番地
浅田化学工業株式会社 TEL079-235-1911 FAX079-235-1915

5. Package

- **Water-soluble products:**

20kg - Poly Can
200kg - Dram
1,000 -1,200kg - IBC container

- **Powder products:**

5-20kg - Paper or Aluminum Foil Bag
420kg - Flexible container bag

※We have export track record for some of the products, please contacts us for more information.

Sample of the package—Powder product

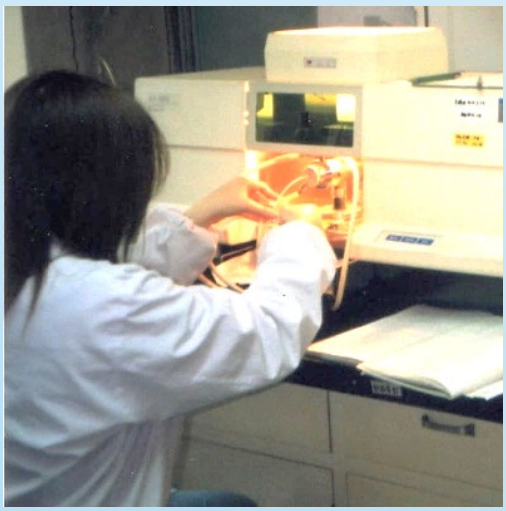
Sample of the package—Liquid product

6. Research and Development (R&D)

Our R&D focus on developing the further functional characteristics for a wide range of applications in various fields.

For those metals and monomer species are not listed, We can also create and make prototype products upon request.

※ If you need information for Lab stage products, please contact us for the details.



Enquiries about our products
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